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ABSTRACT

This guide is designed to provide a basis for the effective design of instructional materials for distance education. Organized around a model of instructional development which encompasses both external structural factors (factors that are largely outside the direct control of the individual instructor but which must be investigated) and internal structural factors (factors that are internal to the materials themselves and are essential to their instructional effectiveness), the guide consists of three main sections. The three chapters of the first section present an overview of the model itself, provide a definition of each of the external and internal factors, and suggest a number of questions to guide the instructional developer in addressing each factor. The second section contains a separate chapter for each of the external structural factors: budget, course function, modes of communication, subject/unit characteristics, subject/unit location, lecturer characteristics, student characteristics, and professional assistance. A separate chapter is provided in the third section for each of the internal structural factors: arousal and motivation, goal definition, cognitive structuring, signposting, activation, feedback, transfer and retention, and assessment and evaluation. (GL)

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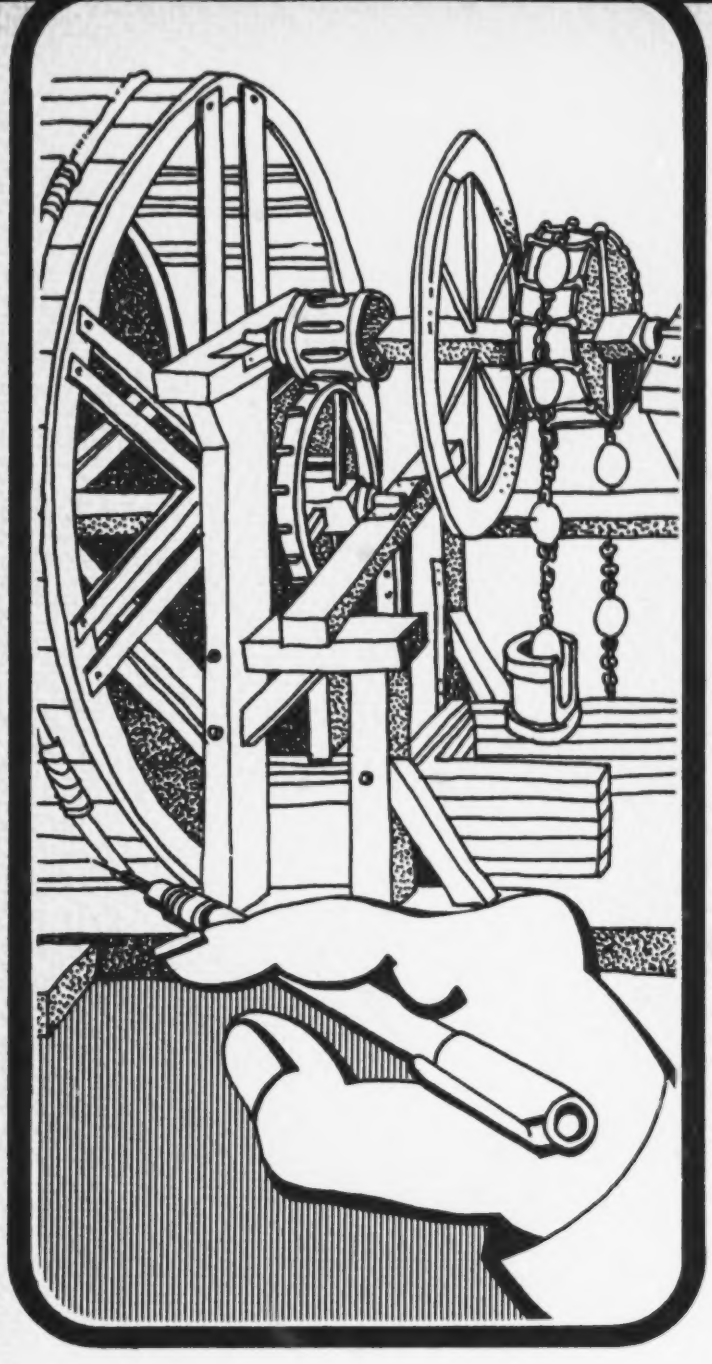

DISTANCE EDUCATION:
The Design of Study Material

E.D. Meacham D.E. Evans

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DISTANCE EDUCATION:

THE DESIGN OF STUDY MATERIALS

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INTRODUCTION

This manual is meant to provide a basis for the design of effective external studies teaching materials. It is based on both practical experience and on theoretical studies in this area. We have endeavoured to make this work comprehensive but have designed it so that you can refer to the particular sections that are relevant to your needs or interests at any stage. We have also tried to write in generalised terms, applicable to most distance education institutions. However, this has not always been possible, so feel free to substitute terms or conditions relevant to your own working environment.

In particular, it should be noted that a 'course' is a program of study leading to a specific award.

Such courses are made up of components called 'Subjects' or 'Units', which may be further divided into 'Units' or 'Modules' respectively.

This work incorporates many years of practical experience in distance education, and the accumulated wisdom gleaned from extensive reading in a variety of disciplines.

The major influence on this work are, however:

> Gagne, R.M. (1970), *The Conditions of Learning*. 2nd edition, London, Holt Rinehart and Winston,

and

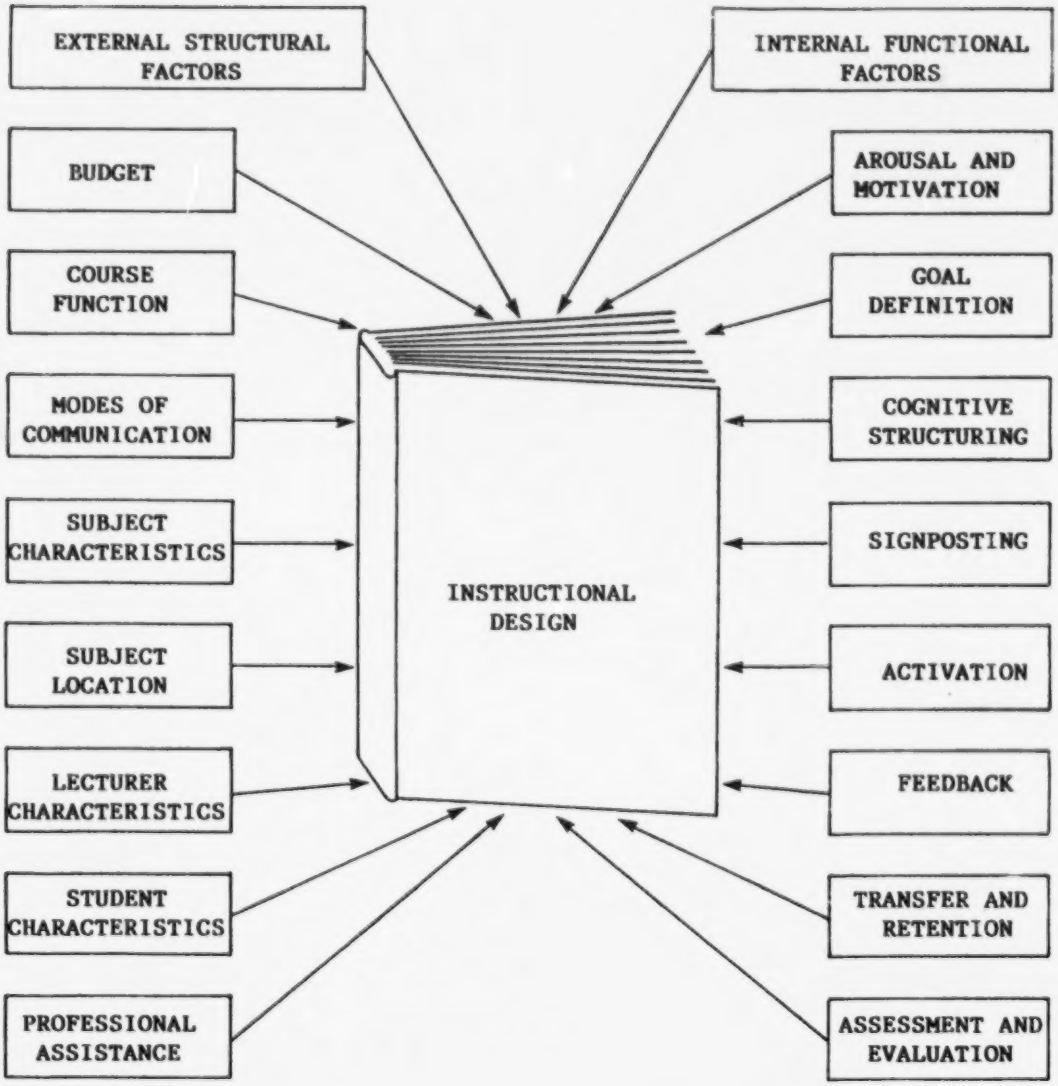
> Baath, J.A. 'A List of Ideas for the Construction of Distance Education Courses' in Holmberg, B. (1982), *Distance Education - A Short Handbook*. Libor Hermods, Stockholm,

to whom the authors are grateful for providing structure for their experiences.

CHAPTER 1

THE MODEL

Outline Model of Major Design Considerations for Distance Education Materials



(adapted from the works of Gagne and Baath)

Before considering the specifics of materials design it is essential that each academic author has a clear idea of the context within which design decisions are made.

The above model presents this context in the form of categories chosen to assist the development of instructional materials.

The major dichotomy is between the External Structural Factors and the Internal Functional Factors. The former represent relatively intractable parameters which limit the courses of action which may legitimately be followed by the academic author. The latter outlines those considerations which reside within the materials themselves, and must be dealt with systematically, if a body of knowledge is to be translated into an effective instructional device.

These observations and their implications will be discussed briefly in Chapters 2 and 3 and then elaborated upon in subsequent sections.

It should be noted, however, that the distinctiveness of the factors considered are frequently not as obvious in practice. Important decisions usually require consideration of more than one factor in isolation. The key to successful instructional design being the ability to balance competing and complementary demands in a manner which optimises both operational efficiency and learning effectiveness.

CHAPTER 2

EXTERNAL STRUCTURAL FACTORS

These factors are largely outside the direct control of the individual lecturer or teacher, but must be investigated.

BUDGET

We should be aiming to fulfil our distance teaching demands as well as we possibly can, by using the simplest and cheapest outward form.

Therefore, anyone involved in course design should consider:

- What media and instructional techniques are essential to my course?
- What alternatives are available?
- What are my criteria for cost effectiveness?

COURSE FUNCTION

Some courses are non-qualificatory and undertaken for interest or the development of some professional competency, whereas others are aimed primarily at the gaining of a recognised award.

In each case, the motivation differs, and these differences should be catered for in the course design.

The essential questions to be asked are:

- Why have my students enrolled in this course?
- How can I use this information in terms of course design?

MODES OF COMMUNICATION

At present the available modes of communication with distance education students include:

- printed instructional materials
- A/V materials (largely audio tapes but also photographs, slides, video cassettes, x-ray plates etc.)

- comments on students' assignments
- informal correspondence and telephone conversations
- face-to-face communication e.g. at residential schools, regionally organised tutorials, etc
- audio teleconferencing
- electronic mail systems
- facsimile.

In many cases it may be possible to send out the bulk of the instructional materials in one package, thereby freeing up the system for alternative modes of communication.

As a lecturer involved in distance education, you should ask yourself which modes are most suitable for transmitting the essence of your subject.

Ask such questions as:

- Can I communicate effectively using only written materials?
- What can I produce in terms of A/V material, which will help carry out my teaching functions more effectively?
- Could I use tape/slide sequences, videotape, original documents, photo-graphic collections, kits, etc.?
- Is practical work or a period of attendance at college essential for my subject?
- How frequently should I be communicating with my students?

SUBJECT (OR UNIT) CHARACTERISTICS

Certain aspects of the cognitive structures of subjects are fairly fixed, usually as a consequence of the internal logic of the discipline.

For example, mathematics is usually organised in a more strictly linear pattern than social science, which favours discrete unit structures or a spiral approach.

The essential question to ask is:

- Are there any logical, practical or conventional restraints on the way my subject can be organised?

SUBJECT (OR UNIT) LOCATION

No subjects are studied in isolation, each is based on formal or informal assumptions about pre-requisite knowledge and competencies. Similarly, unless the subject is the terminal one in a sequence, its relationships with succeeding subjects are likely to influence its design.

It is important to ask:

- How does this subject relate to others in the sequence?
- What are the implications for the design of this subject?

LECTURER CHARACTERISTICS

Lecturers vary greatly in terms of knowledge, attitudes and experience. In view of this, efforts should be made to devise instructional materials which are not incompatible with the talents of individuals and with other aspects such as workload.

Although it may not always be the single most crucial factor, lecturer characteristics must provide an input into appropriate instructional design.

Ask yourself such questions as:

- What are my main academic interests?
- How do I prefer to teach?
- How much time should I devote to distance education?
- What are my main concerns with regard to distance education?

STUDENT CHARACTERISTICS

The major factors to be considered are the age, educational level and degree of domestic and professional involvement of your students.

Generalisations in this area are no substitute for a lecturer's knowledge of individual students. However, it should be borne in mind that many external students:

- are of mature age - over thirty
- have family and work commitments
- initially are less well qualified than younger students
- lack confidence in their learning abilities

- are likely to withdraw, especially in their first semester
- have committed themselves to an unusually protracted period of study
- have a slower rate of learning and smaller capacity of mechanical memory
- have experience of decision-making, manipulating and problem solving
- hold particular attitudes to their work environment.

Thus, it is essential to empathise with external students and attempt to compensate for those factors which arise from social circumstances beyond the control of the University.

Ask yourself such questions as:

- What assumptions can I make about the pre-existing knowledge and experience of my students?
- How much time can they spend on study?
- How can I sustain their interest?
- How can I compensate for adverse environmental factors without compromising the academic standards of my discipline?
- What should be the limits of my personal involvement with their problems?

PROFESSIONAL ASSISTANCE

It is important that lecturers are aware of the full range of assistance offered to them. Assistance is usually available for the design, operation and evaluation of instructional materials.

More specifically, such problems as layout, graphics, copyright, text design and assessment strategies can be dealt with.

The following types of questions should be asked:

- How can I improve the layout of my distance education materials?
- What are the best ways of illustrating my materials?
- How can I evaluate my materials?
- Whom do I contact for assistance?

CHAPTER 3

INTERNAL FUNCTIONAL FACTORS

These factors are internal to the materials themselves and essential to their instructional effectiveness.

AROUSAL AND MOTIVATION

If effective learning is to take place, it is important to arouse the student's interest in the material and sustain this interest throughout the subject. A continued desire to learn must be fostered through the intrinsic interest of the materials, an emphasis on the utility of the material to the student, a personalised approach by the lecturer, attractive packaging and clear layout.

Key questions are:

- How can the relevance of the subject to the needs of the student be emphasised?
- How can I communicate in a personal but rigorous style?
- What improvements in layout and illustration would make my material more interesting?

GOAL DEFINITION

This normally involves the clarification of goals in a manner which unambiguously states the competencies expected to be demonstrated by the students. In more discursive and creative disciplines it is usual to place more emphasis on criteria for judgement than on the competencies themselves.

The essential question to ask is:

- How can I convey my expectancies to my students in a way which is clear and yet still allows for a degree of individualisation?

COGNITIVE STRUCTURING

This involves the presentation of material in a way which reflects an acceptable conceptual framework of the parent discipline, yet is psychologically appropriate for the student.

In addition to links within a subject, links between subjects must be considered.

Questions to be asked in this area are of the following type:

- How can I arrange the material in a way which is logically appropriate in terms of the discipline and psychologically appropriate in terms of the individual?

SIGNPOSTING

This involves guiding the students through the cognitive structure which has been presented for them. Students need to know more than their ultimate goals, stated as a catalogue of terminal objectives.

They need a detailed guide, whereby their academic progress is broken down into easy stages, with natural breaks at significant places. A time schedule is needed, together with advice on possible delays. Also, due dates for assignments must be emphasised.

Ask yourself:

- Do my students clearly understand:
  - * the order in which the material is to be dealt with?
  - * what they have to do with the material?
  - * what is an appropriate pace to work at?

ACTIVATION

There is a great deal of evidence to suggest that active learning involving interaction with printed and other materials is more effective than passive absorption.

In addition to presenting informational material, it is helpful to ask questions and demand responses. The presentation and solution of relevant dilemmas is particularly valuable.

Ask yourself:

- What kinds of exercises can I set the students which will involve them in testing and using the knowledge they have gained?

FEEDBACK

Feedback should be regarded as a complement to activation and is an essential part of the instructional dialogue it is desired to create

Formal assessment needs to be supplemented with self assessment procedures and open access between lecturer and student.

The essential questions are:

- Do my formal assessment procedures have the dual function of providing data for grading and of providing students with a comprehensive indication of progress?
- How can I provide the students with more rapid feedback on their progress?
- How can I best provide feedback for self assessment procedures?

TRANSFER AND RETENTION

It is a normal expectation that students should be able to retain knowledge and apply it in new situations. Therefore, materials should give ample opportunity for revision, repetition and application.

As a rule distance education materials should include far more comprehensive summaries and alternative examples than is the norm for texts.

You should ask such questions as:

- Am I giving students enough opportunity to use the knowledge they should have gained?
- Am I presenting key ideas in a variety of ways?
- Am I summarising the main concepts in a cumulative manner?

ASSESSMENT AND EVALUATION

Your materials must incorporate a means to generate data upon which judgements about students are based. Furthermore it is desirable to obtain information which relates to instructional effectiveness, but is independent of formal continuous assessment.

This can be achieved through informal feedback, but can be effectively supplemented by the use of appropriate evaluating instruments.

Key questions to ask yourself are:

- How do the students perceive my instructional materials?
- How can I account for the distribution of grades?
- Which parts of the subject should I alter?

SUMMARY

If the following questions can be answered positively, then it is likely that the materials you produce are effective.

Arousal and Motivation

Is my material sufficiently stimulating?

Goal Definition

Am I clearly communicating the outcomes I wish to see achieved?

Cognitive Structuring

Are my materials presented in a way which is compatible with both the logical structure of the discipline and students' existing knowledge and competencies?

Signposting

Am I giving my students sufficient guidance about how to work through my materials?

Activation

Is active learning being encouraged by my instructional materials?

Feedback

Are my students receiving effective communication about their progress in the subject?

Transfer and Retention

Will my students be able to retain knowledge and competencies and then use them in a variety of situations?

Assessment and Evaluation

Can I collect evidence which will enable me to make valid judgements about the effectiveness of my instructional materials?

CHAPTER 4

BUDGET

WHAT ARE THE CONSTRAINTS?

Time

Although not often quantified in monetary terms, the time needed for the development of study materials is frequently the most significant cost. Given the available staff, there is only a limited amount of work that can be done in the time, particularly if material is prepared at the eleventh hour.

Materials

All costs of materials for external studies, from paper and envelopes through to video cassettes, are borne by someone. In view of the limited funding available, the provision of additional graphics, audio-visuals, etc. for study materials must be decided upon using carefully thought out criteria.

WHAT DOES IT COST?

The true costs of production may be confused by institutional management practice, however, some of the main costs frequently incurred are:

Printing

The cost is a function of:

- the number of pages in the document
- the number of pages containing material such as screened photographs for which better quality plates are needed
- the use of colour printing
- The quality of covers and binding
- the number of students and therefore copies.

Audio and Video Cassettes

Production time including scripting, recording and editing together with materials such as master tapes and multiple copies incur significant costs.

Artwork

The costs of screening photographs, preparation and photo-reduction of diagrams , diverse graphics and so on, as well as the material used must be taken into consideration.

Slides and Photographs

These can be expensive, particularly if a large number of students are involved and copying is costed at commercial rates.

WHAT CAN WE AFFORD?

Distance education materials range from the multi-media Open University style (with "glossy" booklets, broadcasts, home experiment tests, computer software, etc.) through to the far more modest materials commonly produced by the majority of distance education providers in Australia. Materials should, however, be appraised for the quality of student learning they encourage rather than aesthetic appeal.

WHAT SHOULD THE LECTURER DO?

Ensure that all media are integrated, where possible avoiding the use of expensive processes for material of peripheral importance. Have a range of feasible methods of presentation, thus enabling pragmatic decisions to be made on the basis of available finance. (See Chapter 6.)

CHAPTER 5

COURSE FUNCTION

For each degree or diploma course you are involved with you will no doubt have your own views on the raison d'être of the course. If you are to teach it successfully you must also be aware of:

- the community's view of the function of the course
- the students' views of the function of the course.

COMMUNITY VIEWPOINT

It is important to consider what the validating body has approved the course for, whether the qualification is recognised by employers and whether specific career benefits (salary rises, promotions, likelihood of continuing or new job opportunities etc.) will accrue to the students.

The community's view of the course will in many cases influence the students' reasons for wanting to undertake it.

STUDENT VIEWPOINT

Little systematic collection of data has been undertaken at most institutions on students' reasons for enrolling in courses or subjects. It may be useful for you to send out a brief questionnaire to your students asking for either specific or general information that will help you to know them better, and alert you to problems you may wish to investigate further by interview or informal discussion.

The types of reasons that are most likely to encourage external students to enrol are:

- a specific need for the award
- a hope that the award will provide opportunities at a later date
- a need to develop the specific technical competencies covered by the course
- a desire to acquire skills or knowledge they have identified as relevant to their current or immediate future employment
- a general interest in learning about the areas covered by the course
- a desire to improve themselves intellectually.

In some courses the vast majority of students will be enrolled for the same, or very similar, reason(s), e.g. Radiography. In others, the range of reasons will be so broad that it would be impossible to ever produce one course which suited everybody perfectly.

Despite your inability to find out precisely your particular students' needs before you write the course you can make some progress towards satisfying these needs by taking the following into account:

- In courses where self education is a predominant or common motive, e.g. continuing education courses or liberal arts courses, the intrinsic merit of the material is the most important factor in maintaining student motivation.

- However, whether we like it or not, most of our students take a very instrumental view and the main motivation is the award at the end. The intrinsic merit or interest of the subject may be seen as a 'bonus' by students, who will tend to centre their approach around the assignments.

- Even if a 'piece of paper' is the student's main motivation, many will be studying something closely related to their current or hoped future employment. This raises the problem of relevance (or perceived relevance) to the students' needs. The most difficult areas for the lecturer are those subjects or topics which are important theoretical background to be used later in the course or which will provide the student with resources to draw on in unusual or changing work situations. The interest and intrinsic merit of these topics must be fully developed and their importance clearly explained.

- If, coupled with the award, specific technical competencies are required, then these must be stressed and thoroughly assessed so that the final award will be of value to the student in gaining employment. The subject should not be inflated by material that is there purely for intellectual justification.

CHAPTER 6

MODES OF COMMUNICATION

INTRODUCTION

Of the various modes mentioned in Chapter 2, printed instructional materials are by far the most efficient means of ensuring that all students have sufficient information and guidance to progress through the subject and to locate and utilise any material presented in other modes.

Before looking at specific media there are a number of general factors to be considered, particularly with the use of non-print media.

Practical Considerations in the Use of Various Media

- Student Viewpoint: Equipment Access

  You should not rely on media which some students cannot reasonably access.

  Media may be divided into three groups according to the availability of equipment, i.e.:

  * Equipment which students can have frequent and regular access to at convenient times.

  * Equipment that we can reasonably expect students to purchase.

  * Equipment which students can gain some access to on specific occasions.

  Media in the first and second groups can be used throughout the course. Media in the third should only be used for specific activities to which the students are directed well in advance.

- The University Viewpoint: Technology, Cost, Expertise, Time

  In planning the use of different media, some factors that need to be investigated are:

  * Do the lecturers have the necessary experience and confidence to develop materials using non- print media?

  * Is expertise available locally and at reasonable cost?

  * Is the necessary production equipment available and at reasonable cost?

  * Is time available for developing materials, particularly if lecturers need to learn the basic elements of design and production, or if complex technical assistance has to be arranged?

Characteristics of Media - Print vs Non-Print

- Referability

  Ease of retrieval of material is important. Printed materials and sets of slides or photographs have high referability; conversely, lectures and broadcasts have low referability. The recorded media, e.g. audiocassettes, occupy an intermediate position.

  Therefore, any material needed for repeated, intermittent reference must be in print form. Details of an assignment would be a good example of this.

- Content Density

  This is the amount of information conveyed and the rate at which it is conveyed. Unless word compressors are used, spoken media have the rate of information presentation determined by the speakers, although by interrupting tapes the listeners can make some adjustment.

  In contrast, print and still visuals allow variable presentation rates. Students can work at a pace appropriate to their reading and comprehension skills.

  In addition to allowing variable presentation rates,print permits the use of greater content density, as we can disregard individual differences in speed of perception.

  In any case, we all generally think and read faster than we speak.

  Note: Very high densities of new concepts or information are difficult for the learner to absorb.

  Remember that combinations of audio and visual stimuli enable students to absorb information through two channels simultaneously.

- Individual Learner Differences

  As well as differing in their capacities for absorbing information, individuals differ in the rate and ease with which they can utilise different media.

  Repeating information by using different media caters for individual differences.

- Directiveness

  The spoken word is often more effective in directing the student's thinking. The tape replaces oral instructions given in a face-to-face situation. Interactive situations are probably even better, e.g. teleconferences.

- Space and Time Constraints

  The use of print by the student is relatively free from space and time constraints. Most other media have problems of portability and availability.

Reducing the Isolation of the Distance Learner

The external students can miss out on the more personalised teaching of the on-campus situation and the opportunities for interaction with students and staff.

Residential schools, telephone contact, programmes of regional visits, teleconferences, electronic mail systems and local study groups are some ways of providing opportunities for interactive communication. If these are not available, audio- cassettes can be used to introduce teaching staff and to send more personalised comments to each student or vice versa.

PRINTED MATERIALS: SOME BASIC CONSIDERATIONS

Resources Obtained by Students

In most subjects considerable reliance will need to be placed on either prescribed textbooks or wide reading from other texts, journal articles etc. A balance must always be found between the cost of supplying the bulk of the informational material and the problems created by relying on the students being able to locate the material themselves.

- Textbooks

  Since the availability of a prescribed textbook is so vital for external students, it is necessary to check each year that the text is still available and advise suppliers early in the preceding semester so that copies can be ordered and information sent to students. The cost of the set textbooks should be kept within reasonable limits.

  Changing editions can also pose problems. If specific parts of the text are to be referred to, try to refer to chapters or sections rather than page numbers and keep a copy of the notes with each reference marked to facilitate revision of the notes.

- Library and Other Resources

  In some courses of study the development of the ability to locate information from diverse sources may be a desired objective. If so, this objective should be explicitly stated and not confused with objectives relating to the information itself. Where the information and not the getting of it is important, students must have ready access to materials. Limited opening hours in the evening or on weekends and lack of borrowing privileges at other university libraries can make resource access difficult even for city students.

  When listing references for students the following information should be provided:

  * whether the material is available from the University's library (e.g. by adding the call number)
  * assistance in locating material
  * suggestions for alternative reading.

Printed Instructional Materials

Some common formats for instructional material are:

- a book of notes, with some reliance on a text and additional readings
- a book of notes with heavy reliance on a text
- notes supplemented by essential readings or resources that students cannot be expected to obtain for themselves.

The nature of the unit, the availability of suitable texts and references and the time and money available for preparation of materials will all affect the form the instructional materials take. However, common to all formats is the need for the materials to supply the 'teaching' not merely the information.

This need is particularly marked in the case of beginning students who may have little background in the discipline being taught.

Notes

The notes component of a package of instructional materials may, in the absence of suitable published works, be a comprehensive original discourse on the essentials of the unit. However, such notes are usually a means by which students are directed both to and through important readings or sections of the text.

The lecturer should attempt to:

- emphasise significant concepts
- clarify areas of potential difficulties
- relate various readings or sections to each other and to the notes
- relate the reading to the needs and interests of the students
- promote active learning by setting tasks and posing dilemmas
- provide students with a means of assessing their comprehension of material read.

It is probably not enough to ask a beginning student to 'read' an article without further guidance.

Students need to know:

- 'Why am I reading this?'
- 'What should I be looking for?'

Packaging Instructional Materials

As well as deciding the content of the instructional materials it will also be necessary to choose the most appropriate physical form of the package and the arrangement of the components.

For example:

- how many booklets should be used?
- at what stage during the programme should each booklet be received?
- should practical exercises be contained in the notes or in separate booklets?
- should printed material be bound or designed for a loose-leaf folder?

The following factors should be considered:

- the intended use of the various components
- the need for students to be able to plan well ahead
- timing of residential schools, if any
- cost of numerous mailings
- the psychological impact of regular receipt of material or overwhelmingly large packages.

PRINTED MATERIALS: DESIGNING THE TEXT

Introduction

The successful instructional designer in this regard needs to have a ground knowledge of the principles of textual design, and an ability to communicate this knowledge effectively to other staff, ranging from word processor operators and typesetters to graphic artists and text designers.

There is conflicting evidence of the effectiveness of many established textual design practices, so what follows is not a definitive prescription, but some ideas which should make printed instructional materials more comprehensible to students.

Good learning materials are based on a clear presentation of the structure of the material to be learned. So if you start from unclear thinking, even the best textual design will only have a cosmetic effect.

Bearing in mind that what is learned by the student is based upon what is initially perceived; the role of textual design is to make explicit the underlying structure by using linguistic, spatial and typographic cues to form sequences and delineate segments.

Some Principles of Textual Design

- Print Layout

Most readers use texts selectively, so effective access is necessary, i.e., it should be easy for the individual reader to locate information relevant to a particular set of needs. Such access can be facilitated by layout and typographic devices which aid information structuring and retrieval.

* Access Devices

Overall Accessibility (location within whole text)	- List of contents - Clear pagination - Page headings - Conceptual maps - Index - Glossary of terms - Objectives - Abstracts
Local Accessibility (location within segments of text)	- Hierarchy of headings - Emphatic use of space - Marginal devices - Typographic variation - Diagrammatic representation

* Focus and Emphasis

Learning from texts involves active processing of information, but many students are deficient in text processing strategies, therefore the design must encourage appropriate strategies. Focussing on the essential points and giving them due attention seem to be the main processing difficulties for students.

Focussing and emphasis may be improved by taking account of the following observations:

. Status of material and location with respect to the structure of the whole text must be self evident.

. If key ideas are embedded in the text they are difficult to recall.

. Poorly thought out material requires strong typographic and layout devices. However, layout can never substitute for logic.

. The devices used should enhance learner control.

. Labelling may be used to identify and summarise textual elements and can include:

Various headings	- to show structure and give access
Terminology and content markers	- to aid emphasis and information retrieval
Marginal notes	- summarise and emphasise

. Highlighting may be used in one of the following forms:

Implicit: overviews, abstracts, etc in prose
Explicit: typographic

. Illustrating can fulfil several functions:

arouse interest
focus attention
facilitate explanation
aid retention

. Spacing can provide an emphatic, consistent arrangement which enhances clarity, retrieval and comprehension.

Vertical spacing:

- Spacing must reflect importance of segments
- Begin new paragraphs with space not indentation
- Maintain harmony between typography and space
- Use floating baseline to maintain spacing
- Complex hierarchies may require indentation, typographic, devices, flagging and spacing used in combination.

Horizontal spacing:

- Unjustified text avoids uneven spacing
- Avoid last word on line starting sentence
- Layout should be based on meaning not symmetry or convention
- Space is the most important variable in textual clarification.

Diagrams, Charts & Tables

What we are concerned with here is the spatial representation of logical relationships, or the links between spatial dimensions and conceptual distance.

Principles of construction:

- Layout of concept labels should reflect semantic distance.
- Use arrows and lines to indicate the direction and sequence of concepts within a process.
- Where possible place concept labels where they would be in the real world, e.g. soil beneath atmosphere.
- Include small pictures and diagrams to aid concept identification, especially for students with low verbal ability.
- Arrange concepts to follow natural eye movement; from left to right and from top to bottom of page.
- Place superordinate concepts and categories in prime positions, i.e. top and left.
- Without overprompting students, use study questions to draw attention to details, take care to cover all important aspects.
- Avoid overcomplex or redundant diagrams.
- Simplify but not oversimplify tables and flowcharts.
- Space to highlight functional groupings.

Bear in mind that understanding diagrams is not easy for some students as it requires certain mental skills. Also marketability and aesthetic factors are often the motivating factors behind the use of illustrations. Striking layout does not always facilitate learning. Try to look at the problem from a functional viewpoint. Remember, there is no 'best way' - the solution must consider both the reader and the task.

Good design should facilitate:

- understanding of logical principles
- location of information
- interpretation of information
- focus on essential information

Photographs

These should be used mainly for instruction rather than decoration.

Guidelines for enhancing instructional effectiveness:

- Refer to photographs in written text.
- Consider function: retention, recall, introduction, review, emphasis, etc.
- Use captions to indicate content and context, form and function, thus guiding individual interpretation.
- Although students may prefer realistic representations, they learn more effectively from stylised sketches, diagrams and models, so a balance of illustrative forms is best.
- Complex images are examined more closely by readers, but if excessively complex are incomprehensible.
- Dynamic images (events and activities) provoke more interest than static images (portraits).
- The placement of photographs or pictures should be related to purpose: before a written passage to link or introduce; within, to emphasise or illustrate; after, to review.

The effect of pictorial illustrations on the learner is not clear. To date, pictures have most frequently been included to increase the appeal of texts, rather than from any consideration of instructional effectiveness.

Computerised Visual Display

There has been comparatively little research on textual design for VDUs with many current systems producing images considerably more difficult to comprehend than the printed page. Crude letter forms often result from a lack of typographic design expertise and the limitations of the dot matrix system, inflexible word and line spacing is common, screens have limited capacities and each frame is isolated.

It may not be possible to represent curves and diagonals satisfactorily and the graphics programs for headings are frequently wasteful of screen space.

Legibility problems occur as the image consists of transmitted rather than reflected light. White, yellow, cyan and green are the most legible, with red and blue the least. Green and white on a dark background are probably the best combination. Appropriate use of colour is a means of compensating for typographic limitations.

- Guidelines for Visual Display Material

  * Frame Layout

    . Be aware of limitations in typographic or spatial coding.

    . Use colour (not more than 3) to compensate - two colours for content, one for headings. White, yellow, cyan, green give a hierarchy of emphasis, e.g., cyan or green text, white or yellow headings, use flashing and highlighting sparingly.

    . Use space and avoid clutter; appearance must reflect logical structure and visual emphasis indicate relative importance. As in printed text, colour, typographic and spatial coding must be used hierarchically. Logos and headings should not use excessive space.

    . Avoid cryptic codes and abbreviations.

    . Organise around natural eye movements.

    . Avoid denseness, hyphenation and unconventional spacing, separate paragraphs with line space.

    . Each frame should be self contained.

    . Avoid rules and vertical colours for tables (too much vertical emphasis) - carefully consider limitations of grid.

    . Graphs and charts must be simple, bar graphs better than lines.

  * Usage

    . Simple user response to change page; page forward and back, avoid scrolling.

    . Pause for erase/display.

    . Relate keys to commands, minimise key strokes, use consistent key/commands, provide clear instructions and prompting.

So, although the computerised visual display is a different medium to the printed page, the basic problem remains the same; to relate, divide and emphasise information.

AUDIO-MEDIA

In some instances, sound is an integral aspect of the subject matter to be presented, e.g. languages, music.
Also the translation of print to a spoken form in such subjects as maths deserves attention.

e.g. $\frac{d(\sin\alpha)}{d\alpha}$

(The derivative of sine alpha with respect to alpha).

However, for almost all subjects the audio-cassette can be a practical and inexpensive means of personalising the material, providing variety and interest, and, if well designed, presenting information whilst the eyes are occupied elsewhere.

Disadvantages and Advantages of Audio-cassettes

- Disadvantages
  - * Speed of listening is far less than of reading.
  - * It is more difficult to deduce meaning from context.
  - * The overall structure of the material is difficult to envisage.
  - * Retrieval of specific information is problematical.
  - * There may be cost restraints.
  - * There are logistical problems.
- Advantages
  - * Students are able to use them easily.
  - * They are re-usable and cheap to dispatch.
  - * Audio-cassettes can be used together with a visual stimulus.
  - * Communication can be personalised.
  - * Dialogue can be naturally presented.
  - * Novelty may have a motivational effect.

Guidelines for the Use of Audio-cassettes

- The Unsatisfactory Use of Audio-cassettes

  A major use is the recording of lectures and monologues, frequently poorly, with discordant background noise and unstructured presentation.

  Poorly structured lectures, badly recorded are not effective.

  Similarly recordings made at home by lecturers are often ineffective, particularly when they are poor quality recordings of dull monologues with disjointed content.

  Furthermore, excessive use of cassettes within one subject is highly suspect as it is unlikely that one medium is suitable for the achievement of all objectives. The choice of medium should be intimately linked to the choice of objectives.

  Do not use audio-cassettes for:

  Long monologues, straight factual material, administrative material to be constantly referred to.

- Examples of Effective Use of Audio-cassettes

  * Personalised introduction of the lecturer to the student.

  * To guide the student through the instructional material, thus giving an overview of the subject. Pages in the material are referred to, and specific important aspects are highlighted.

  * Particularly stimulating lectures may be taped, but they must be clearly recorded.

  * They are essential for subjects concerning certain performing arts, e.g. music, play and poetry reading, also language courses.

  * Cassettes are effective in reproducing discussion or debate.

  * Cassettes and printed material may be combined effectively, where the printed material consists largely of charts, slides, flow diagrams and calculation. The cassette can direct the attention of the students to various aspects of the charts etc. and guide their thinking as they progress.

  * Cassettes may be used for a personalised commentary on formal assignments.

  * Cassettes may be produced by the students for assessment purposes, e.g. where an audio performance such as a public address or instrumental performance is to be assessed.

VISUAL MATERIALS

Although visual materials generally consist of those reproducible on paper, it is possible to consider the inclusion of slides or other forms of visuals, which one could reasonably assume could be viewed on equipment readily accessible to the most isolated external student.

Some of the main reasons for using visual material are:

- to compensate for lack of access to the real object
- to present material in an alternative format in order to reiterate, signpost, summarise etc.
- to provide motivation by making materials more varied or more attractive.

In addition, external students will need access to visual materials that would also be needed on campus to show such things as:

- Microscopic or aerial views.
- Time lapse sequences.
- Slow motion.
- Cut away models etc.

Still vs Moving Visuals

Student access to video equipment is now widespread, however, unless students are required to recognise or imitate movements it is not essential to use moving visuals and effective use of graphics or sets of slides or photographs will suffice in most cases.

One should also bear in mind that it is often preferable from an educational point of view to present the students with the real thing rather than any kind of substitute. Therefore, encouraging students to utilise local resources and opportunities may provide the best educational medium while forming the basis for activities or projects.

Media Combinations

The purely 'visual experience' has little place in most teaching programmes so visuals will rarely be used on their own. Sets of slides or photographs, for example, should be accompanied by printed reference material and can also be combined with an audio-cassette.

The synchronised slide-tape programme has limited use in external studies because:

- the equipment is not always readily available to the student
- the programmes will frequently need to include breaks for activities which may involve the student in setting up the equipment on a number of successive occasions.

Therefore, a programme designed around photographs or slides plus printed notes and a supplementary audio-cassette is more likely to be efficient from the student's point of view.

Video-Cassettes: Combining Sound and Movement

The video-cassette comes into its own when either movement is the key aspect to be studied or when sound and movement are linked, e.g. drama, group interactions, animal behaviour studies etc. Effective use of video-cassettes has been achieved for demonstrating procedures (e.g. scientific experiments) and as orientation for students embarking on distance education for the first time.

OTHER COMMUNICATION MODES

Formal Correspondence with Students

It is possible to plan in advance for a certain amount of communication throughout the semester. Regular assignments (to which you can realistically expect to respond in some detail) provide not only feedback but assistance to students in keeping to a work schedule. However, no matter how conscientiously you attack the piles of assignments, 'turn round' time can rarely be brought under two weeks, and three weeks is more often the case. This time lag must therefore be built into the design of the programme.

Informal Communication

Although the form and frequency of informal contact with individual students will vary greatly, it is essential that students have some efficient and reliable way of contacting you should the need arise. If you cannot organise a regular telephone contact time each week, indicate to the students what is the best method of getting their messages through, by contacting administrative staff, informed academic colleagues or by using ansaphones or voice mail.

Face-to-face Communication

Residential schools provide not only a means of covering specific activities such as practical work but also an opportunity for formal and informal interaction (with other students as well as staff). The time and monetary costs involved for the students must be carefully balanced against the educational opportunities provided by face-to-face contact and access to University resources. Visits to groups of students at study centres should also be considered in this context.

DESIGN AND PRODUCTION OF AUDIO-VISUAL MATERIALS

The educational technology unit or its equivalent should provide full technical information and assistance. However the initial move must come from the lecturer, who should bear the following in mind.

Planning

Plan and script first; this requires that the functions and objectives be identified and a structure determined.

Copyright

If application for copyright permission is required for any part of the production this must be done well in advance.

Introductions and Labelling

It is important to introduce the materials clearly giving information about author and by outlining the content and function of the materials. Proper labelling is essential to assist not only the student but the packaging staff.

Variety

Boring monologues do not meet the need. Alternative modes of boredom are not motivational. Mix discourse and debate, source material and commentary.

Instructions

Specific instructions are needed about the use of the materials and their relationship to other modes. A printed 'programme guide' will enable students to assemble all necessary equipment at the appropriate time.

Production

- Voices must be clear and easily understood.
- Record under good conditions.
- Use good quality equipment.
- Allow more time than you think you'll need!

SELECTING THE MEDIA FOR THE JOB

Compared with on-campus teaching, it is very difficult to change the initial decisions made for distance education materials. Therefore more careful planning is needed, particularly if a variety of modes is being considered.

The criteria to be used arise from:

- practical factors
- media characteristics
- teaching functions
- specific features of the distance-learning situation.

In practice our present options are largely limited to print (with slides or photographs), audio-cassettes, residential schools, individual correspondence, electronic mail and video-cassettes. A suggested approach for deciding which combination of these to use is outlined below.

Listing the Preferred Media

- List the media appropriate for presenting the specific subject content or objectives.
- List the media appropriate for accomplishing the other teaching functions e.g. motivation.
- List the media that could be used to reduce any specific disadvantages faced by external students.

Weighing up the Alternatives

- Eliminate any media which are unrealistic from an institutional or student viewpoint.
- Consider alternatives to achieve the same goals.
- Select the main medium for structure and continuity (usually print).
- Select other media to supplement the main one.
- Decide how the media are to be integrated.

And finally

- Design and Produce.
- Implement and Evaluate.

CHAPTER 7

SUBJECT/UNIT CHARACTERISTICS

Subjects/units in an administrative sense consist of fairly discrete division of the traditional disciplines or applications of theoretical knowledge into specific types of substantive problem.

The traditional disciplines of knowledge frequently have key characteristics, which distinguish them from one another. The main distinguishing features are:

- Key Concepts e.g. Velocity in Physical Science, Positivism in Philosophy.
- Networks of Concepts e.g. Velocity, Mass, Acceleration; Positivism, Existentialism, Marxism.
- Methods of Investigation: Empiricism, Experiment.
- Criteria for Truth: Empirical Evidence, Axiomatic Logic.
- Mode of Communication: Mathematical symbols, literary style.

In the case of subject or unit areas derived directly from a single discipline, it is essential that the structure of these subjects or units reflects the characteristics of the parent discipline. Many courses, however, are interdisciplinary or integrated in nature and the relationship between contributing disciplines and individual subjects will differ from the case above. In such cases, the structure of the parent disciplines becomes subservient to the demands of the substantive field, e.g. Radiography is primarily a diagnostic tool not a means of furthering the students understanding of physics or anatomy.

The actual structure of each subject should ideally strike a balance between the demands made by the logical structure of the discipline (e.g. addition should be taught before multiplication) and the psychological demands on the student (e.g. I need to do a great deal of multiplication now).

It is necessary therefore to:

- Be aware of the conceptual structure, logic, methodology, and criteria of the disciplines contributing to any subject.
- Either reflect these characteristics in each subject/unit or group of subjects/units;

  Or, in applied areas, reflect those aspects particularly relevant to dealing with the types of phenomena with which you are concerned.
- Consider the relationship between the logical structure of the subject or unit and the student's psychological structure of knowledge. What do students know already, what are they interested in?
- Devise a structure for your subject or unit which the students find easy to follow, caters for their interests, relates to their previous knowledge, becomes progressively more demanding, yet remains faithful to the characteristics of the parent discipline, and is appropriate for dealing with substantive problems.
- Distinguish between subjects or units which have linear structures, e.g. maths; spiral structures, e.g. sociology; or unit structures, e.g. chemical analysis.

CHAPTER 8

SUBJECT/UNIT LOCATION

In addition to the internal structure of each subject or unit, the relationship between the various subjects making up a course must be considered.

Some subjects are introductory in the initiation sense, where the aim is to introduce students to the whole range of a field of study. Others are not really introductory, but provide basic skills which will be utilised later in the course sequence. Others may be presented at the start of a sequence because they are the easiest to understand in a non-sequential range of topics.

Subjects appearing in the middle of a sequence should build upon knowledge previously gained and provide a foundation for further study. Finally, terminal subjects in a sequence should build upon and utilise the known knowledge and competencies which students have demonstrated they possess as a consequence of their previous prescribed studies.

The implications of such observations are as follows:

- Introductory subjects used as initiators into new fields of knowledge should be broad in scope, be based on familiarisation rather than mastery and assessed in a way which measures a broad general knowledge of the main issues of the subject area.

- Introductory subjects which aim at providing basic skills should emphasise specific mastery and be assessed accordingly.

- Subjects which appear early in a non-linear sequence should focus on their internal aims.

- Subjects occurring in the middle of a sequence need special consideration if appropriate links are to be made with both previously acquired and anticipated knowledge.

- Terminal subjects in a sequence should aim at synthesising previously acquired knowledge, refining previous competencies and knowledge, enabling students to enter the workforce or higher level of study, with an adequate degree of preparation.

CHAPTER 9

LECTURER CHARACTERISTICS

Academic staff exhibit an almost infinite degree of variation; however, our main concern here is with the degree of competency and commitment possessed in relation to distance education. There is a close relationship between competency and commitment and this reflects itself in the 'Level of Concern' towards distance education. The following levels of concern have been identified in academic staff: Personal, Task, Impact and Refinement. The level of concern of any individual has significant implications regarding the design of learning materials, viz.:

- Staff at the **Personal** level of concern require that learning materials are designed which do not produce excessive demands upon them. At this stage they are not committed to the venture and do not see clearly the benefits for them. Therefore costs to the individual should be minimised.

- At the **Task** level of concern emphasis should be placed on the efficient implementation of the teaching process. The emphasis here is on management and efficiency rather than educational effectiveness. The educational material for such staff must be designed in a way that allows appropriate use of time and resources in the context of competing commitments.

- The **Impact** level focusses upon the effect of the materials and requires the development of an effective system of evaluation, arising from student feedback. In the case where the lecturer clearly sees the task as worthwhile and manageable, the emphasis in design should move to teaching effectiveness. This is the time for evaluation. Do not evaluate the teaching effectiveness of subjects/units considered to be of little value or inherently unmanageable.

- The **Refinement** level is exhibited when concern is directed towards seeking more satisfactory alternatives. This is the optimum situation where the lecturer is comfortable with the value, management and effectiveness of the subject/unit, and actively seeks to improve it.

Thus from the individual staff member's viewpoint the resolution of those problems linked with levels of concern, should proceed in a systematic manner, so that lecturers produce the learning materials with which they feel most comfortable.

CHAPTER 10

STUDENT CHARACTERISTICS

Off-campus students range from office workers through to home makers to retired people. They are almost all adults and most are in full-time employment. Although it is very difficult to make generalisations about such a varied group of individuals with their range of work and study environments, external students are generally different to internal students in:

- the level and nature of their motivation to study
- the problems they face
- the work pattern they adopt.

- Motivation

  External students may be highly motivated, particularly if studying for an award which will further their career prospects. However, the high rate of withdrawal is sometimes indicative of a lack of (or failure to maintain) motivation, perhaps arising from isolation, other commitments, feelings of inadequacy, etc.

  Study is an extra facet of their lives, already heavily committed to jobs, families, etc. With such constant juggling of priorities, study does not always come first.

- The Special Problems of Off-campus Study

  The on-campus student ideally receives direct communication with the lecturer at lectures or tutorials and can also contact staff informally as well as being able to collaborate with other students. Such interactions assist in the development of confidence and understanding. Distance education students work in comparative isolation and are denied such interaction. They cannot acquire scholarly attitudes and intellectual stimulation from the University Community.

  However, they do have the opportunity to maintain a degree of anonymity which can be particularly important for students returning to study after a long break. The freedom to study at a pace which suits them and the opportunities for anonymity are for many students factors in favour of the external mode. However, external students tend to feel more insecure and inadequate as students, remote as they are from previous educational experiences, fellow students and supportive staff. A student's confidence in his/her own abilities is a major factor in academic success.

  As well as being isolated from staff and fellow students, external students are isolated from the other teaching resources of the university, in particular, the library. Although students in big cities may have potentially greater access to resources than full-time students in the country; time, city traffic, lack of borrowing privileges, etc. can all limit the effective use of these resources.

- Workloads and Study Habits

  As they are forced to study mainly in evenings or at weekends, external students are usually limited to work sessions of two-four hours duration, and are frequently tired before they start. It is worth bearing in mind that students' workloads are often effectively limited to about fifteen hours per week and that students take much longer than anticipated to complete activities.

PRINTED MATERIALS AND INDIVIDUAL LEARNING STYLES

When designing study materials for external students it is just as well to remember that they are individuals who have different styles of learning and different strengths and weaknesses, e.g. in the skill of concept recognition.

Understanding text depends to a great extent on available prior knowledge, so we should find out what the student does know and provide what is required to be known.

The most capable students tend to concentrate on the subordinate level of text, readily linking it with existing conceptual structure; structure in the text is measured against their own knowledge structures as a test of comprehension. These students suffer least from poor quality texts.

Less able learners are thought to read more superficially and benefit more from 'open' text with easy access, clear structure, diagrams, analogies, and in-text questions. The problem is how to help the weakest without overburdening the strongest.

Consequently study materials should be designed for as large a variety of readers as possible.

They should be arranged such that they can be used in the way which most suits the individual.

Notwithstanding the inconclusiveness of much of the evidence in this area, well organised, clearly set-out texts containing opportunities for active learning, will enable a wider range of students to gain most benefit.

IMPLICATIONS FOR THE DESIGN OF EXTERNAL PROGRAMMES

- Instructional materials should be as clear and self-explanatory as possible.
- The aims of each subject should be clearly stated.
- Content should be carefully selected and logically developed.
- Confusing elements should be explained or clarified.
- Activities should be designed to confirm knowledge and develop understanding.
- Tasks and procedures should be unambiguous and easily located for reference.

- From the outset a full explanation of assessment procedures and weightings should be given.
- Careful feedback is required to give reassurance and advice through comments rather than grades. In the case of students who are struggling intellectually or perhaps with a heavier than expected workload, clarification, encouragement and the pointing out of essentials on a regular basis may determine whether or not they drop out.
- Assessment should be used as a pacing device and aid to learning.
- Access to academic staff must be catered for.
- All possible avenues for increasing staff/student and student/student interaction should be explored.
- Workloads should be carefully thought out.
- Try to split up learning tasks into 2-3 hour units with some kind of active learning, such as a self-assessment exercise.
- Printed materials must be easily read, both in terms of layout and content.
- Student access to required equipment or materials must be real not just assumed.
- Materials should be arranged so the individual can decide how best to use them.

CHAPTER 11

PROFESSIONAL ASSISTANCE

INTRODUCTION

Preparing and conducting an external subject involves working with a wide range of other staff within the university, all of whom have their own areas of expertise and of course their own deadlines to meet and their own departmental procedures to be followed.

In order to allow sufficient time to take advantage of professional assistance available, it is necessary to identify, at the start of the planning process, what materials and activities will be required for the subject, viz.:

- attendance sessions/practical work
- prescribed text(s)
- reference material, wide reading
- printed material:
  - notes or study guide,
  - books of readings,
  - laboratory manuals, etc
- audio-visual material.

Having decided which of these you will need or would like to include, the Distance Education Centre will assist you in selecting the most appropriate combination, given the available resources, and advise you on which groups within the University can give you support in the detailed design and preparation of materials.

RESIDENTIAL SCHOOLS

The need for a residential school should ideally be determined by the objectives of the subject and the activities required to achieve these objectives. Once activities requiring attendance have been identified, their relationship to the rest of the programme can be determined and the most suitable time for the residential school can then be worked out.

Residential schools are normally scheduled during on-campus student vacations when residential accommodation, laboratories, etc. are free. The most common patterns are therefore either introductory schools, e.g. to familiarise computing students with the use of terminals, or mid-semester ones when the students have sufficient background knowledge to benefit from the practical activities.

PRESCRIBED TEXTS

Finding a suitable textbook is often hard enough; finding a suitable one that stays in print can be even more difficult! Appropriate bookshops and libraries, publishers and distributors can all be sources of information concerning the availability of the text(s) desired.

REFERENCE MATERIALS

Ensuring that students have access to prescribed reading which is not in a set text or to additional reference material for clarification, project work or enrichment, etc., is one of the greatest problems in planning an external course.

It is essential to define what purpose such material serves before decisions can be made on the most appropriate means of getting it to the students. One way to approach this is to ask, as the students inevitably will:

> 'Can the assignments or tests be completed without access to this material?'

A second question to ask is, of course:

> 'Can the students realistically be expected to read this material plus everything else in one semester?'

Having answered these questions and made a realistic assessment of availability of material from the students' local sources the main options are:

- to ensure or supplement supply through appropriate libraries or study centres
- to send material to the students in the mail package.

PRINTED MATERIALS

Five main processes may be used in the preparation of materials for printing:

- typing
- typesetting
- word processing
- photocopying
- graphics.

Quality Control: Photocopying and Graphics

All material must be of sufficiently good quality to reproduce well on off-set presses. The sort of problems frequently encountered are:

- poor quality photocopies of readings
- photographs that have not been screened (i.e. converted to an image composed of dots)
- material too large to fit on an A4 page with room for page numbers, stapling and 'grip' for the printers
- sketchy or faint diagrams.

The following points should be remembered:

- Obtain advice on the printing quality of materials.
- Wherever possible try to supply reprints that can be used directly as the master, or original artwork rather than copies of diagrams.
- If this is not possible, unless you have an excellent copy, then supply the actual book or article.
- Supply good quality photographs for screening.
- Do it early!

AUDIO-VISUAL MEDIA

If audio-visual materials are to be used it is essential that they be of good quality so that they will succeed in achieving your objectives.

Academic staff should seek guidance on:

- the design and planning of materials (including scripting of tapes)
- the initial production stages: photography, filming, recording
- editing of tapes
- reproduction and mounting of slides and photographs.

Make the most of the opportunities to record under studio conditions, have tapes professionally edited, get the close-up shots you want and have graphic material prepared for slide sequences and film titles.

COPYRIGHT

Under the current Act it is not usually necessary to apply for permission to reproduce material. However, a detailed record of each item reproduced is required.

It is essential that you check the copyright provisions that apply to the material you wish to reproduce, and do it early so that alternatives can be found if necessary.

Remember that copyright applies to audio-visual materials as well as to printed ones.

Unless the Act changes dramatically the 'one chapter per book or 10%, one article per journal issue' ground rules should guide your planning.

PLANNING THE PRINTED PACKAGE

The one feature common to all subjects is the need for good design of the printed notes or study guide that will be used to direct the students through whatever materials, printed or otherwise, are to be provided.

As the printed materials must transmit the guidance and teaching as well as information, they must be well structured. They must also make use of whatever graphic and typographical techniques are available to highlight this structure and to provide emphasis, ease of referability and a readable and attractive format that will stimulate and encourage students to keep reading.

Staff involved in production and development should be able to assist you by suggesting ways of structuring the materials, providing the appropriate highlighting and then looking after the details of selecting typefaces and graphics. However they must have a conceptual framework to build on. This framework should allow the following to be recognised:

- divisions into major topics or sections
- headings and sub-headings within each section.

Bear in mind, however, that too many levels of headings will confuse rather than emphasise the conceptual arrangement.

Therefore aim for no more than three levels of headings and label them clearly on the script.

Activities and Signposting

Typographical and layout techniques can be used to highlight such aspects as:

- required reading
- self-testing questions
- worked examples

- reflective or stimulus questions
- summaries
- key concepts
- frequently referred to sections.

As there is a limit to the number of special graphic techniques that can be utilised in any one package you must decide which are the features to be emphasised.

Consistency

Being consistent with the format is easier said than done. One of the most useful techniques is to make a summary of headings and signposting as you write. A little extra time spent initially will save everybody hours of work later.

Try to establish a pattern and then stick to it .

Examples of Points to Watch For

Are the major subdivisions to be called topics or sections?

Did you decide to number 1, 1.2, 1.2.1 (no more than that we hope!) or 1, 2 . . . then (a), (b), . . . then (i), (ii), . . .? Remember also that numbers and lettering can often be unnecessary if an effective system of dots or stars will suffice.

Will each topic need to have the same structure, e.g. starting with reading instructions, finishing with a summary?

Do you want to include different types of questions, e.g. self-tests, stimulus questions? Will the students get confused if these are not distinguished? Will the development staff and word processor operators get confused if they are not distinguished?

AND AFTER THE MATERIALS ARE MAILED?

Once the semester starts you will have to mark assignments, prepare tests (in time to be typed, printed and mailed) and organise facilities for residential schools. In addition, there will always be a number of problem situations to cope with such as:

- students unable to obtain texts or references
- students having difficulty completing assignments on time
- requests for exemptions from residential schools
- students unable to sit examinations on the set date.

Find out what the current regulations and procedures are and which departments/sections have facilities to assist in these areas.

PUTTING IT ALL TOGETHER (BEATING THE DEADLINES)

Having looked at the various components of a distance education program return to the planning list suggested at the start of the chapter. The main stages are:

- Identify components required.
- Discuss with development staff what special planning or preparation will be needed and start thinking about how the components are to be integrated.
- Set all administrative processes in train, e.g.:
    - * bookshop orders
    - * library orders
    - * copyright information
    - * booking of residential school facilities
    - * select assignment due dates.
- Get to work on the material that will need extra preparation time.
- Submit your manuscript by the agreed date

Because of the industrialised nature of publication and the need for tight scheduling within limited time frames, late submission can easily lead to students being seriously disadvantaged.

CHAPTER 12

AROUSAL AND MOTIVATION

It is important for your instructional materials to arouse the students' interest and provide the motivation that will enable them to proceed through the course with only the small amount of direct contact that is able to be offered them. The main ways through which you can do this are:

- utilising your knowledge of your audience
- the design and layout of the materials
- developing a personalised approach
- writing style.

KNOWING YOUR AUDIENCE

Preparation of printed learning materials for external students is not easy. As there is little direct contact with students, printed words and illustrations must convey almost the whole message.

Your style should be tailored to the abilities and needs of the student group. This applies to the level of writing as well as the incorporation of personal factors. Certainly any examples given should use terms and situations that are as relevant as possible to the needs and interests of your audience. Knowing your audience is essential.

DESIGN AND LAYOUT OF THE MATERIALS

Structure and Guidance

Attempt to head your students through a map of knowledge. Guideposts and staging points are necessary as is reiteration. Do not lose them in a maze of disorganised material. Confusion will dampen the enthusiasm of even the most ardent student.

Illustrations

These may be motivating as well as instructional, but all should have clear reasons for their inclusion. While considerable professional assistance is usually available for the actual preparation of illustrative material, the ideas must come from you initially, in the form of tables, maps, charts, photographs and so on.

Variety

Make full use of variety - in vocabulary, sentence structure, examples and illustrations. Breaks and activities should be at regular intervals, to sustain interest. Variation in style, media and response helps to promote better learning.

PERSONALISING DISTANCE EDUCATION

Students' isolation and anxiety can be compensated for by a personal, informal approach. Some suggested techniques are:

- Approachability - students should be able to make staff aware of their problems.
- Request personal letters - early expression of difficulties; leave a time slot for phone calls.
- Immediate response to letters - this reassures them that they are not forgotten as well as providing continuous feedback.
- Welcome students on tapes.
- Use a personal and informal writing style.
- Use teleconferences to establish personal contact and deal with personal learning difficulties.

WRITING STYLE

In face-to-face teaching you try to project your enthusiasm, and students may ask questions when in doubt.

In external teaching you must use the written word to:

- Show our enthusiasm and interest.
- Clarify.
- Guide.
- Encourage.
- Maintain interest.

This can be done through:

- Attitude - personal, informal and friendly
- Expression - natural, direct, clear, vigorous.

Attempt to be yourself on paper. If you have a humorous, provocative or active lecturing style, let it come out in your writing. Students welcome the odd joke or diversion, but frivolity, if taken to excess, may harm your bonafides as a teacher.

Attitude and Tone

Try to write in a personal, informal manner, where possible writing as you would talk using down to earth examples, familiar terms and personal pronouns. The language used should be relatively simple and the most effective style is essentially supportive.

Style and Expression

Sub-headings should break up the flow of words and show organisation of thought. It often helps to begin by listing information in point form, then elucidate further.

Sentence Structure

Short sentences should predominate, as they are easier to understand and produce fast-moving, business-like material. However, sentences of varying length are essential to avoid monotony. Long sentences slow the pace and provide a more relaxed approach, but if they are too long and involved, they are difficult to follow and may lead to error or frustration.

Terminology

University textbooks use long words, long sentences which often have complex punctuation, and are usually single subject orientated. They are read by people who have to gain knowledge, so little attempt is made to attract or hold reader interest. They are intended for an audience which is both well educated and well versed in the terminology of the particular discipline. Teaching materials should bridge the gap between popular journalism and esoteric language.

Write to your audience, avoid unnecessary jargon and complexity. Academic, educational and scientific terminology are needed to state facts precisely and in such a way that they cannot be misinterpreted, but considerable knowledge is presupposed, so introduce new terminology carefully and encourage the students to start using the language appropriate to the discipline.

SOME BASIC GUIDELINES

- Keep sentences short, but variety helps prevent boredom. Fifteen words per sentence is a reasonable guide.
- Prefer the simple to the complex, but remember you are an **educator** not a journalist.
- Prefer the familiar word to the unfamiliar, remembering that communication is only a component of education.
- Avoid unnecessary words, but be wary of too dense an information pattern.
- Write as you would talk, use down-to-earth examples, familiar terms, personal pronouns.
- Use terms that the reader can picture and emphasise the practicality of the situations under discussion, if this is possible.

- Tie in with reader experience.
- Write to express, not to impress. Straightforward, lively language and simple explanations are better than pretentiousness.
- Material written in complex, convoluted language is a far less efficient means of communcating with external students than is material written in simple ordinary English.

CHAPTER 13

GOAL DEFINITION

DEFINING THE OUTCOMES

Students need clear guidelines as to what they can expect to gain from the subject/unit and what is expected of them. Try to make the content of each subject/unit as accessible as possible to students by stating outcomes in terms of what the student will be able to do as a result of working through the materials.

If you can define your content in this way, then assignments and self assessment questions will come easily.

Try to write four to five general outcomes for the whole subject/unit, then be more specific within each module/unit.

AIMS AND OBJECTIVES

Aims are usually stated at the beginning of the subject. However it maybe better to place objectives at the end of each section where their meaning should be more readily understood.

Aims

A composite statement of:

- the role of the subject in the course
- the reasons for students taking the subject
- a summary of the content.

Objectives

Objectives are controversial. Some people like to write them in behavioural terms so that their achievement can be observed, quantified and assessed. Some reject this and claim to be concerned with affective objectives or complex cognitive objectives, trivialised by behaviourism.

However, the intent of the subject should be made clear to the student, the content should be related to the intent, and the assessment to both. Avoid ambiguity; separate the skills, knowledge and attitudes; relate units to objectives.

The following examples illustrate and elaborate upon the points expressed above.

- Aims

  In the context the aims of a subject can be seen as a composite statement of the role of the subject in the course, the reasons for students taking the subject, and a summary of the content.

  A good example of this can be seen below where the lecturer writes, in the introduction to students:

  > 'Psychology research methods are an important subject for any student of psychology to master. With a well-grounded understanding of research methods, the student should be able to confidently design measurement instruments and research designs, which are appropriate for the research question. It is very easy for anyone, psychologist or non-psychologist to compose a questionnaire. It is considerably more difficult for someone to design a questionnaire which is a good measuring instrument, and that really is useful in assessing the quality it purports to. You might think of psychology research methods as the technical side of psychology. Just as it is not possible to paint great works of art without the technology of the palette and brush, it is not possible to carry out good research without the methods and statistics which you will learn here.'

  Note that it emphasises the intentions of the subject more than the expected behaviour, competencies or performance of the student.

- Objectives

  In many subjects the outcome most valued is action, not just the possession of knowledge. Therefore, in such cases we should try to ensure that students:

  * have adequate knowledge of facts and concepts. (*Propositional Knowledge*)
  * are capable of carrying out operational procedures based on the above knowledge. (*Procedural Knowledge*)
  * demonstrate a propensity to act in accordance with their recently acquired Propositional and Procedural Knowledge. (*Dispositional Knowledge*)

  Having made these distinctions it is possible to design a formalised table of outcomes. An example of the first part of such a table is shown below.

  Such a matrix can be of great assistance in generating and organising both substantive content and assessment items. However, such objectives need some elaborating commentary if they are not to confuse or perplex the student.

Many objectives cannot easily be broken down into discrete, observable behaviours, so many of us write objectives as in the following example.

Propositional - Students will know	Procedural - Students will be able to	Dispositional - Students will
The most highly publicised models of the curriculum process.	Distinguish between positive analysis and normative fantasy in the field of curriculum planning.	Make plans based on a situational analysis rather than an obscure text.
That any curriculum involves process as well as product.	Recognise the limitations of a product orientation to curriculum planning.	Favour curriculum changes which enhance both the process and product of education.
Alternative ways of organising the school curriculum.	Devise an overall curriculum plan which is informed by a thorough knowledge of available alternatives.	Place emphasis on the vertical and horizontal integration of curriculum components.
Of the availability of resources, variations in temporal and spatial organisation in schools.	Recognise which alternatives are viable in a given situation.	Choose resources and a temporal and spatial organisation which are compatible with the underlying philosophy of the school.

While this unit's prime objective is not to make a market researcher of you, it has been prepared with the belief that the manager needs to understand the research process.

This should occur if you can achieve the following sub-objectives:

* understand the nature of the research process so that you can evaluate a research design and proposal;

* know the various ways in which marketing research data can be collected and their respective advantages and limitations;

* understand the nature of sampling and the alternative sampling methods available;

* obtain meaning from research data, through use of some simple statistical processes (no attempt will be made to convert you into a statistician).

This certainly does not confuse or intimidate the student but it does leave room for doubt as far as the criteria for adequate performance are concerned. However, the inclusion of self-assessment questions could clarify this problem. Also the term 'understand' creates problems as understanding is an ill defined state of mind which is invariably listed by examining what is supposedly indicative behaviour.

The student needs to know what behavioural evidence for understanding is acceptable.

In the following case, the lecturer relates the subject/unit to others within the course and has, before writing the desired outcomes for the new subject/unit, listed the knowledge that he has assumed the student to possess. Consequently, the example is a particularly interesting one and you should read it carefully. While reading the example, start forming in your mind the ways in which you could do this in your subject.

Welcome to Leadership 4B. This subject assumes that you have successfully achieved the outcomes and objectives of Educational Leadership 4A (Foundations of Leadership I).

Leadership 4B (Foundations II) has been deliberately planned as a logical extension of 4A, building upon the ideas and concepts developed there in a general way and giving them a more specific orientation.

In Leadership 4A, there was a deliberate intention to bombard you with a wide range of ideas about leadership to change existing value systems, to identify alternate value positions and to investigate the influence value stances have on administrative leadership decisions. You were introduced to role theory and challenged to analyse the institutions in which you have worked, are working or intend to work, in terms of this theory. You were stimulated to consider how much the role associated with your present position has changed in the last half century and to investigate the forces underlying such changes. Finally, Leadership 4A, introduced you to one methodology for thinking about the nature of organisations and of people working within them, viz., a social systems perspective. As a result of Leadership 4A, you should now be able to:

* Identify and illustrate the use of theory in practice.

* Understand the inseparable nature of theory and practice.

* Acknowledge the importance of values and value stances to administrative action.

* Recognise the relationship between beliefs about the purpose and nature of education and the acceptance and development of particular types of administrative, organisational and educational structures.

* Identify and illustrate models for the examination of role relations within organisations in which you work.

* Illustrate an understanding of the historical development of roles in the organisation in which you work.

* Describe and illustrate a variety of models describing appropriate leadership styles.

* Apply the concepts of social systems theory to administrative settings.

* Understand the implications social systems theory has for effectiveness, efficiency, satisfaction and morale in an organisation.

* Understand the integrated nature of values theory, role theory, leadership and social systems theory as a means of analysing organisational structures, administrative actions and member behaviour.

If you can, well done! If you can't, did you study Leadership 4A, or take it?

Leadership 4B will build upon the above knowledge and understanding. It will do this in two ways:

* By identifying a perspective of organisation which we believe is an appropriate one for organisational analysis. This perspective is the Systems perspective.

* By choosing three areas of study which we believe are appropriate to the development of your understanding of educational institutions as systems, viz., Organisation Theory, Theories of Organisational Change and Innovation, and Decision Theory.

In other words we are going to assume that Leadership 4A exposed you to a wide array of ideas about organisations and leadership. We are now going to ask you to focus in on one fruitful way of understanding organisations as total entities, and ask you to restrict yourself to three methodologies for understanding operations within the total entity.

Objectives of Leadership 4B

By the completion of this subject you will be able to:

* Describe the nature and properties of a system.

* Illustrate the nature and properties of a system by reference to appropriate educational institutions.

* Describe the historical development of appropriate approaches to the understanding of organisations as systems.

* Illustrate an understanding of the relevance of systems theory to the analysis of effective leadership behaviour.

* Define and illustrate in educational settings the classical concepts of organisation theory.

* Describe and illustrate appropriate theories of innovation and change.

* Apply appropriate concepts of organisational change in practical settings.

* Identify a variety of models for the decision process, and assess their relevance to educational settings.

* Analyse recent decision theory and organisational research in terms of its implications for the behaviour of educational leaders.

* Apply the concepts developed and refined in this subject in a variety of action activities.'

This example is instructive as it deals not only with what is expected of the successful student upon completing the subject, it also focusses upon appropriate entering behaviour, i.e. what the student should know and be able to do before starting the subject; the real pre-requisites.

In conclusion it should be re-emphasised that it is most helpful to the student if provided with both the 'AIMS' of the subject (What is the purpose of the subject, how will this purpose be achieved, where does this subject fit in etc?) and the 'Objectives' (What should the successful student be able to do upon completion of all or part of the subject?).

Unless there is a genuine desire for a gross diversity of goals, both aims and objectives should be stated as unambiguously as possible.

Write to your audience, the outcomes we present to the validating bodies often need translation for a student audience. The language used to influence one's colleagues is frequently not the best to guide and inform students.

CHAPTER 14

COGNITIVE STRUCTURING

Ideally, the material to be taught should be divided into study units. Each study unit should be based on an idea which is fairly discrete, but clearly located within the wider conceptual framework of the subject as a whole.

After a student has completed the study of one part, it is desirable that the student be given some active role, e.g. answer key questions, solve set problems, carry out prescribed experiments. Such work should either be formally assessed and returned with appropriate criticism, or should be part of a self assessment programme, whereby the student is given the information needed to check the veracity of his/her answers and refer back to appropriate sections of the materials.

The idea behind the division of the material into study units is that students should be offered a suitable quantity of learning matter at a time so that they can regard the study of each unit as a separate task and can always survey the material to be learnt. The theory is that this way the bulk of possibly difficult learning material loses its potential for intimidation. Students should be encouraged to learn one unit at a time and then integrate their understanding of the completed units. Students should not be repelled by concern about material which is as yet too complicated for them.

With each finished unit and the associated activities and assessment, the results of the students' efforts become apparent.

The principles of organisation above are derived from a consideration of the psychological needs of students.

The key to successful organisation of distance teaching materials is to divide them up in a manner which not only caters for the needs of the student, but also is consistent with the internal logic of the subject and its contributing disciplines. Academic disciplines may be divided up according to their substantive content (Africa, the 19th Century and Frogs this week!) or their conceptual framework (Primary production, colonialism, environmental adaptation).

In general, 'pure' disciplines are best divided in accordance with conceptual considerations whereas 'applied' disciplines are more appropriately sectionalised with reference to substantive content. Also it should be borne in mind that some of the traditional disciplines, e.g. maths and physics, have a much more clearly definable conceptual hierarchy than others, e.g. geography and history. There is no intent here to be prescriptive or to make invidious comparisons between subjects. The object of this discourse is to suggest that:

- the psychological needs of students are better catered for if subjects/units are presented in modular form
- the choice of modules is largely dependent on the internal logic of the subject/unit
- some subjects/units are best divided with regard to conceptual organisation, others with regard to substantive organisation

- the author must make an informed decision on the type of modules chosen
- this decision and its justification should be communicated to the student both in the subject outline, and in the organisation of the notes, table of contents, the style of headings, the type and frequency of activities and assessments etc.
- estimates of the time required for each module are clearly indicated. In some subjects it is possible to go even further and provide estimates for reading time, time for self-assessment activities etc. Such attention to detail can help prevent excessive workload for students.

STRUCTURING THE TEXT

Here are some ideas which may help you structure your learning materials:

- Begin with a clear conception of the knowledge, experience and expectations of your audience. Select strategies for relating new knowledge to prior student knowledge.
- Have a clear vision of the conceptual structure of the material; key issues and facts, sequences and relationships - make it clear for the students by explicitly teaching it.
- Organise learning segments so that the student can control the sequence of learning, if possible clarify pre-requisites and aim to move from the simple to the complex.
- Isolate each learning segment and attempt to include in it; generality, example and practice. Summarise and synthesise at the end of each segment.
- Give a wide range of analogies, examples and non-examples and select any other supporting content.
- Indicate learning strategies appropriate for each segment, e.g., active learning, relate to experience, continuous and terminal synthesis.
- Produce instructions to ensure format reflects intent with regard to structure.

Advance Organisers

Meaningful learning is aided if new material can be incorporated into existing cognitive structures. One way of assisting this process is the provision of advance organisers.

An advance organiser is:

> *Introductory material presented in advance of instruction, and of a higher level of abstraction, generality and inclusiveness than the following related instructional material.*

Therefore, Advance Organisers should be at: a high level of generality, abstraction and inclusiveness.

Conventionally they should be in advance of the following subordinate passage.

Put simply; each important segment needs a brief overview so the student knows what it is about and how it relates to its context.

In more detail, AOs are supposed to:

Provide a structure within which content can be located.

Stabilise learning by assisting the incorporation of new learning with existing cognitive structures.

Help students discriminate between ideas.

Provide links with previous knowledge.

At this stage it should be noted that AOs are not merely summaries of ideas and that there is inconclusive evidence concerning their effectiveness. The effect of AOs is relative to the learner and the subject matter. Well structured material for students with strong pre-existing frameworks of knowledge is not necessary. Also post-organisers facilitate learning, which is hardly surprising as readers do not always use texts in a linear fashion.

Although somewhat contentious, Advance Organisers are worthy of inclusion if some learners in some subjects/units benefit some of the time.

They are most effective when the material is conceptually unfamiliar, the students are able, the text is not clearly organised, and when the context of new ideas is not otherwise made explicit.

Good Organisers are:

Concrete models
Analogies
Examples
High order rules
General discussions
Meaningful comparisons

Ineffective Organisers are:

Lists of facts
Summaries
Outlines
Directions

CHAPTER 15

SIGNPOSTING

This term refers to the mechanism by which students are guided through the cognitive structure of the subject/unit. If the Subject Outline/Unit Information Booklet is analogous to a map or chart, then signposting involves details of the route to be travelled, estimated arrival times, mandatory check points, etc. The degree of prescription in the signposting procedure may vary greatly in response to the type of student and the nature of the subject/unit.

The technique of signposting involves you the lecturer clearly identifying:

- The structure of the subject/unit (in terms of its substantive content and conceptual framework).
- The preferred order in which the content and concepts should be dealt with.
- The preferred method by which the student should deal with the contents and concepts.

So, initial decisions have to be made concerning structure, direction and activities. The next stage is to communicate these decisions to the student in an unambiguous manner. To do this, clear instructions appropriately laid out are necessary. Much of the signposting will take place in the Subject Outline/Unit Information Booklet (Synopsis/Preliminary Booklet/Course Guide), with repetitions and reminders in the notes. The core of the signposting consists of a table of contents, a list of objectives, a description of assignments, an explanation of learning activities, and a learning schedule.

Remember, the student's plea:

- What's this subject about?
- How much do I have to learn?
- Am I getting behind with my work?
- Do I understand what the assignments require?
- When are the assignments due?
- Do I work through the examples or just read?

These questions and many similar ones should be anticipated with adequate signposting.

The following suggestions for Subject Outlines/Unit Information Booklets cover the essentials of signposting.

SUBJECT OUTLINES/UNIT INFORMATION BOOKLETS

Unlike internal students who can immediately ask you personally for clarification of details which you may have considered self-evident, the external student is dependent upon the clarity and precision of the written information which you provide.

Armed with a thorough introduction to the subject (both content and procedure) each student can become quickly oriented and easily organise the hours and pace of a study program.

Ideally, Subject Outline/Unit Information Booklets should contain the following data:

Preliminary Details

- Identification
  - * department/faculty, subject/unit number, subject/unit name, subject/unit coordinator/lecturer(s), author(s) of any study materials not written by the lecturer
  - * summary of study materials (e.g. number and types of booklets: study guides, resource material etc) and assignment submission schedules.
- Assistance Information

  For example: Lecturer's name/address, phone number/hours available.
- Other Items to Include
  - * Introduction
    - . include pre-requisites for the subject/unit
    - . general introduction to the subject area
    - . introduction to the lecturer/writer.
  - * Aims
    - . simply stated (i) (ii) (iii)
    - . expectations e.g.: 'By the end of this subject/unit you should be able to ..., understand ... etc.'
  - * Subject/Unit Organisation and Content
    - . organisation of the subject
    - . suggested emphasis e.g.: number of weeks of study, study hints.

* Bibliography and Text

  . which books to buy

  . reference books - helpful comments as well as full details of Author, Title, Publisher, Year and indication of whether or not they are held in the University's library.

* Assessment

  . forms of assessment, weighting, due date (or suggested mailing date, but make it clear which)

  . use diagrams, tables or calendars to set it all out clearly

  . grading of assignments

  . extensions, withdrawal, incomplete grades

  . requirements for the submission of work

  . exams - invigilated? Length? Type? Purpose?

  . residential or weekend schools? timetable, areas to be covered.

* Expectations and Requirements for the Presentation of Assignments

  (If applicable):

  . either describe requirements in detail or refer students to an approved reference or university/department style guide.

* Examples of Test Questions

  . typical questions with model answers.

* Assignment Topics

  . all together unless it is vital that they occur in context in the notes.

However, these should be supplemented by additions and reinforcers in the text. For example, a list of learning activities would normally appear in the table of contents but the details of such activities should be embedded in the text, using distinctive type, paper or layout.

CHAPTER 16

ACTIVATION

If the signposting procedure can be thought of as a map with routes, and schedules which involve a guided tour through the literature, audio-tapes, slides etc., then the activities or exercises included in the materials will serve as checkpoints which indicate whether or not the student is progressing satisfactorily. The activities should highlight the significant ideas, questions and points of view that the student should master if the subject objectives are to be met.

Through their own actions, students should be able to list their knowledge of the key facts and concepts of the course, ideally through something akin to a 'tutorial in print'.

Some activities should relate to specific areas of content, whereas others should give the student an opportunity to practise more general intellectual skills such as comprehensive analysis, synthesis and evaluation.

The lecturer should use the activities to test students' recall and comprehension of important material and their ability to analyse, synthesise and evaluate according to the conventions of the discipline.

Activities also may be used to dramatise and emphasise, especially important concepts, and to draw attention to specific readings and areas of controversy, and to give practical experience through home experiments.

In general students completing the activities should be able to check their comprehension of the material by using concrete examples, preferably from their own experiences, to illustrate relevant theoretical perspectives. They should also be encouraged to read more widely or at least think beyond the material presented. It is important that the activities are meaningful and interesting, and provide a psychological break from passive absorption. The degree of difficulty and the lecturer's commentary should aim at a balance between reassurance and a critical appraisal of the students' performances.

Sample responses to the chosen activities provide an invaluable source of feedback which is not reliant upon mailing turn-round times.

Remember to qualify your model responses and make clear whether you are supplying an acceptable model answer or the only answer. It helps to include the criteria by which you would judge an answer to be appropriate as well as a sample answer.

The range of possible activities is enormous, here are some examples from which those appropriate to particular subjects and students may be chosen.

Student Material Interaction

Have you found reading this book boring? Well if you have, that's probably because you haven't been interacting with the material.

Here are some ways of activating students, or preventing them from going to sleep:

- ask them factual questions
- ask them questions involving values
- ask them to apply their theoretical knowledge to a problem or a case study
- require them to relate theoretical concepts to their own experience
- make outrageous or controversial statements
- encourage them to detect deliberate fallacies in arguments you present
- stimulate them to anticipate arguments
- make them observe and make an accurate record of some phenomena
- use graphic material
- set up simple experiments
- require the making of audio-tapes or other non-print responses
- include short tests, preferably self-checking.

Here are some other suggestions for promoting active learning:

- Matched pairs: for example, linking concepts and substantive examples.
- Provide a list of disjointed facts to be synthesised and interpreted.
- Cloze exercises: keywords omitted with various amounts of cueing.
- Simple questions with short answers with sample answers provided.
- Observations, plotting or recording of data and comparison with author's results.
- Model building: forming own classification or grouping.
- Complete matrices of concepts.
- True/false questions: may involve degree of conviction or quality of evidence.
- The selection of arguments to present as good a case as possible for something.

- Role playing: simulation - imaginative insights, in-tray exercises.
- Give examples or non-examples of concepts from individual experiences.
- Appraise adequacy or sufficiency of evidence or arguments.
- Calculate, simplify, summarise, paraphrase, critically review, compare and contrast.
- Problem-solving or task completion.
- Case studies: e.g. medical cases.
- State opinions and attitudes towards something and revise if need be when given more evidence, e.g. aesthetics, alternative viewpoints etc.
- Apply criteria of truth to arguments.
- Compile criteria: list appropriate questions to address to a topic.
- Identify key facts and issues: e.g. sounds in music; writers' assumptions, bias, values.
- Translate: e.g. from sound to notation, graphs to words.

In all cases activation should not focus on superficial learning tasks as this encourages a shallow, ill-informed attitude. Take care that students are asked to evaluate, apply, discuss and comprehend material rather than simply recalling it. Remember - superficiality in teaching and testing encourages a similar performance in students.

CHAPTER 17

FEEDBACK

Before discussing details, the general point should be made that contact between student and lecturer takes considerable time, if normal methods of correspondence are used. A turn-around time of fifteen days would be about as good as could be expected. This is one of the many reasons why subject materials should be as self contained and accurate as possible. If this is done, students will not suffer the frustration of being unable to continue until a lecturer clarifies materials which are ambiguous or puzzling. Proper initial planning will enable feedback to be used constructively, not as a re-active fire-fighting technique.

A large amount of the required feedback should be provided by self assessment items and their accompanying answers and commentaries. However, such feedback is impersonal and not related to the specific needs of individual students. The lecturer teaching in the external mode must cater for these needs as far as his/her expertise and role allows.

Students require feedback in the areas of:

- Tuition
- Academic counselling
- Administrative counselling
- Personal counselling.

There are no fine lines drawn between these, but normally it is expected that the lecturer deals largely with areas one and two, whilst three and four are dealt with by more specialised counselling services.

The prime role of the lecturer is to provide feedback in the tuition area. This mainly involves the marking of assignments and the provision of adequate commentaries. In addition, a multitude of queries unrelated to specific assignments may arise.

To be more specific, you should bear the following comments in mind.

Turn-around Time

Time is of the essence. The longer the turn around time, the less effective is the feedback your corrections provide. Research indicates a rapid fall off of the effectiveness of feedback after fifteen days.

Remember that if it takes you five days to correct a student's assignment, then the student will receive the corrected work three weeks after submitting it - and a lot of things can happen to a busy family person in twenty-one days. So it could be difficult for the student to recollect the details of an assignment to which your comments refer.

Nevertheless your comments are the main, and possibly the only, feedback that the student will receive while studying your subject/unit. So it is necessary to arrange your own personal timetable so that you can respond as quickly as possible to students' work. If you have difficulty doing so, you could telephone explaining that you have

not lost interest and giving some preliminary responses to the student's work. The importance of rapid responses to individual academic problems cannot be over-emphasised.

One of the most promising methods of reducing turn-around time is the use of Electronic Mail. Such a system will only be successful if students have ready access to a computer and modem and are reasonably computer literate.

Marking

Should you just mark, or should you build teaching into your comments?

If you were simply marking the work, you would give it a tick or a cross, a grading, and/or a short comment indicating what you thought of the student's efforts. Sometimes this may be all that is possible or required, particularly if it is a straightforward assignment that students have apparently had no problems with, or if it is the final test in a subject.

But you should look for opportunities to go beyond this. For example, the response to the question:

'What is viscosity?'

may have been

'Viscosity is stickiness'.

A whole range of responses from you is possible.

(a) 'Wrong.'

(b) 0/5.

(c) It is the property of a fluid whereby it tends to resist relative motion within itself.

(d) It is something like stickiness, but are all sticky substances viscous?

(e) This is a likely but naive definition - I suggest you re-examine page 27 of your notes.

(a) and (b) are both examples of straight marking.

(c) marks the assignment, but does considerably more in that it **teaches**. It does this by directly supplying the right answer.

(d) and (e) also mark the assignment and also aim to **teach**. But they do this quite differently to (c). Instead of directly supplying the student with the right answer, they provide clues aimed at starting the student off on the way to discovering the correct answer. (d) does this by providing clues and asking questions. (e) does this by directing the student to a reference.

There is a strong school of thought that the sort of teaching provided in (d) and (e) is much more appropriate for adult learners than the sort of teaching provided in (c). In other words, adults respond to learning situations to which they themselves are able to contribute actively, instead of passively receiving the good word from the all-knowing teacher.

What Tone Should be Conveyed?

Bear in mind that the student could be returning to study with considerable apprehension. And, because self image is something to protect, the student may not be prepared to accept demoralising criticism which fulfils the student's worst expectations of the education process.

You should therefore aim to make your responses to assignment work as supportive as possible.

This means picking out those aspects of the student's work which display strengths and encouraging him or her to build on these. It also means identifying weaknesses and suggesting ways of improvement. It does not mean building up a false sense of academic brilliance - but, when brutal honesty is necessary, it should incorporate concrete proposals for developing positive points and overcoming negative ones.

Always try to avoid the implication that a mistake, or a number of mistakes, made in a particular assignment, is an indication that the student is generally inadequate.

Let us look again at the student's response to the question:

'What is viscosity?'

which, as you may remember, was

'Viscosity is stickiness'.

Possible variations in the tone of a lecturer's comment are shown in the following examples:

(a) 'Nonsense! This is basic physics which anyone attempting this course should know.'

(b) 'Incorrect. Check your references.'

(c) 'This is partially correct, but naive. In order to refine you definition, I suggest that you ...'

(d) 'You are quite right in saying that stickiness is akin to viscosity. However, there are other factors, and to establish what these are, I suggest that ...'

(e) 'A very good answer for a layman. There is just one slight omission and, to see what that is, you might like to ...'

How Long Should Responses Be?

There are at least two opinions on this.

One suggests that all the student is interested in is the mark received for the assignment and will not bother to read comments of any length.

The other argues that the tutor response consisting only of a mark and a very short comment, or no comment at all, would neither make the student feel that anyone cares, nor provide the student with any learning experience.

To accept the former argument is to abdicate some of your responsibility as a teacher.

The answer probably is that you should gear the length of your response to:

- the nature of the assignment
- the response to the assignment
- and what you know of the student.

So, if it was a straightforward assignment, correctly answered, and you know that the student is a no nonsense person who can't be bothered with unnecessary verbiage, you would keep your comments short and sweet.

However, in the example of the viscosity question, none of the lecturer responses were too long. More assistance could have been given to the students in helping them learn where they went wrong. In fact, where common problems appear, it is very effective to provide model answers.

What Language Should Be Used?

Again you must consider the level of language appropriate to the subject being studied, and the student.

It is not much use advising:

> 'you have been the prey of a popular misconception regarding this elementary concept'

if the student doesn't know what that means. What, for example, might have been a better way of putting this to a thirty-one year old housewife who has not studied since leaving school fifteen years ago?

However, as we have mentioned, most distance education students are adults who expect to be spoken and written to as such. If, as an alternative to suggesting the student is a prey of a popular misconception, you wrote:

> 'what a silly mistake you've made! We must watch out for this one next time, mustn't we?'

she could easily respond in a negative way to what she sees as patronising language and tone. Try to avoid both pretence and naivety.

Tone can be affected by choice of language in other ways, too - compare the following:

(a) 'You have made a mistake.'

(b) 'You are wrong.'

(c) 'You have committed an error.'

(d) 'You've made a boo boo.'

(e) 'Your answer is incorrect.'

(f) 'This is not quite right.'

All of which seem to be saying the same thing. Yet, (c) conveys a more formal tone than the others, (d) is the friendliest, and (e) and (f) are the only ones suggesting that the answer, rather than the student is wrong. It is better to direct attention to the work rather than the student, especially in the case of error.

What Medium Should Be Used?

Most of what we have said suggests that your responses to assignments will be via the written word. Generally this is true, but you should also consider the advantages of using other media.

For example, recording your comments on to a cassette may create a less formal and more friendly atmosphere than the written word - particularly if it helps get your personality across. And it may be a lot easier for you in some cases to 'talk' to students in this way, rather than compose letters to them.

Similarly, you may find that a telephone conversation, or a face-to-face meeting, will, on certain occasions, help you to get your comments across, and, equally importantly, to provide immediate feedback.

Of course there are limits. Trying to describe a complicated mathematical formula or architectural drawing is much better done on paper. But an explanation of a diagram could well use the spoken word plus a visual image.

When you do use the written word, you should still consider how to communicate most effectively.

Should you print rather than write long hand? An honest appraisal of the legibility of your writing is necessary here.

How long should your sentences and paragraphs be? A reasonable rule of thumb is to keep your sentences short, and to use paragraphs to introduce visual and logical breaks into what might otherwise be a depressing mass of words.

Conclusion

As a lecturer involved in distance education, you have become part of a system which provides learning to a group of students, mainly adults returning to study, who have chosen to study at a distance.

You should relate what you know of their needs to the process of contributing to their learning experiences away from the traditional classroom. These students have certain preconceived notions of themselves and how they, as adults, should be treated. They also have memories of school, and therefore education, which could well be in conflict with how they believe they should be treated; and they have returned to study for particular purposes.

Whilst you should get to know your students and take the initiative to provide them with the support that will help their learning experiences live up to their more positive expectations, you should be careful to avoid a personal involvement so deep and complex that you are unable to maintain a working teacher/student relationship. And your support should not result in students receiving false impressions of their academic abilities - it should help make them aware of their strengths and weaknesses in your subject area, and provide the means for them to develop the strengths and eliminate the weaknesses.

CHAPTER 18

TRANSFER AND RETENTION

A normal expectation of students is that they should be able to retain knowledge and apply it in novel situations. To do this, students need a clear idea of the conceptual framework of the subjects they are studying, how they relate to each other and how they relate to personal and non-academic knowledge.

In addition, students need to practise their new found competencies and be presented with repetitions and recapitulations if their recent learning is to remain anything more than merely ephemeral.

Transfer and retention are greatly assisted by appropriate motivation, goal setting, cognitive structuring, signposting, activation and feedback. However, some complementary strategies need to be outlined.

As you are probably fully aware, in writing a book or an article, repetition is studiously avoided. This desire for succinctness is in contrast to the teacher's desire to enhance students' learning through repetition. If lecturers write instructional material without repetition or recapitulation students will find the constant barrage of new ideas difficult to follow and many will lose their grip on the conceptual development within the subject. This is partly due to the fact that highly receptive students capable of spontaneous reflection are few.

The nature of the student should always be considered in designing instructional materials.

The need for recapitulation and repetition is widely recognised as far as the on-campus student is concerned; the correspondence student is no exception. When constructing distance education subjects, an awareness is needed that, by the time the average student has reached the end of the subject, unless working in a subject with a strict hierarchical structure, the student will have only the vaguest ideas about what was first learnt.

It is necessary to return to all really important points in one way or another.

Sometimes it is sufficient to provide a comprehensive cross referencing and revision system: 'Before you continue, go back to page ? and make sure you understand ... '

But in most cases it is more suitable to write a repetitive chapter or section, in which all the important concepts are summarised and related to the substantive content of the work already completed.

Often it is possible to tackle a problem from a new angle to bring about repetition by relating concepts to the students own experiences or by introducing new organisers, e.g. the concept of revolution into a previously strictly chronological history subject.

Exercises, with accessible solutions for self-correction and all kinds of formal assessment items are strong incentives for repetitions by the student. By careful construction of exercises and tests, valuable repetitive surveys of the principle concepts of a subject can be brought about.

Exercises and tests form part of the didactic conversation which should characterise distance education. It is possible by means of suitable questions, exercises and tests not only to check knowledge, but also to provide actual teaching.

Repetitive Questions

In many cases the student needs help both to learn the necessary facts and to practise newly acquired knowledge. To satisfy the first of these demands it has been found to be useful to provide students with a series of detailed questions on each distinct part of a subject. These questions are intended to enable students to check that they retain all important facts and concepts. The answer to these questions may be given or alternatively the student should be carefully referred to the relevant portions of the notes.

Exercises

As soon as skill at solving problems and applying knowledge acquired becomes essential, e.g. as in mathematics, applied science, accountancy, management, social welfare and education, it is of great value to the student to obtain the appropriate amount of practice. It is not enough for the student to follow a theoretical discussion leading to the correct conclusions, the student must be able to independently produce solutions to problems similar to those discussed in the notes. Much practice is needed in subjects such as mathematics,applied science and accountancy, and as a preparation for the formal assessment, it is beneficial to intersperse self-checking exercises and problems throughout the notes.

Thus a considerable amount of active work on the part of the student can help to stabilize knowledge and practical skills.

Model answers and complete solutions together with references to the relevant sections of the notes and some supplementary comments, provide a valuable aid to comprehension and retention. It is important to indicate why the answer given is the correct one, how it has been reached and what possible alternatives there are. Lecturers should remind themselves from time to time that the average student cannot be expected to see, without assistance, all the logical contexts lecturers consider necessary.

What is self evident for the lecturer is often not evident at all to the student, so don't be afraid to repeat and even labour, what is in your learned opinion, the obvious.

Novel Situations

A good test of comprehension and application is whether or not a student can use newly acquired knowledge in a novel situation. It is particularly stimulating to present situations where the student is already familiar with the substance of the problem, but has to view it from a new conceptual framework. Alternatively, utilising established procedures in unfamiliar environments is useful.

Long Term Recall

Here are some ideas to consider if you wish your students to retain information for longer periods:

- make reader use information to solve problems
- lead student towards 'self-discovery' of key ideas
- include non-verbal, visual representation
- combine large amounts of information into single visual impression
- provide vivid visual impressions
- encourage students to rearrange ideas in their own way
- provide clear structural outlines
- use novel methods of representation
- utilise careful spacing
- provide opportunities for active learning

CHAPTER 19

ASSESSMENT AND EVALUATION

ASSESSMENT

The first requirement for any assessment is that it must be carefully planned. This means that those concerned with its development must themselves be clearly aware of what they want to do and why and must be prepared to tell this to others. The basic components of any assessment are four in number:

- the objectives of the course proposed for assessment
- the skills to be developed in the course and the content to be covered
- the techniques of assessment to be used
- The weighting of the various parts of the assessment.

Before specific techniques and problems of assessment may be dealt with, the importance of objectives should be emphasised.

The defining of objectives explicitly is not something which comes easily to lecturers, although they inevitably define them implicitly through the learning experiences they provide for their students and the questions they ask them in tests of all kinds.

However, this process may easily lead to inadequate definition and lack of communication. If people do not know where they are going or what they are doing, they will be unable to find out whether they have arrived or what they have achieved.

Lecturers ought first of all to decide what they consider to be important in their particular courses of study for their particular students in their particular schools. Most lecturers tend to answer the question of what they consider to be important in terms of content rather than in relation to skills or in terms of what their students can or cannot do at the end of the course. Nevertheless, these same lecturers will very often make demands upon their students in relation to these last two points by means of the questions they set or the problems they pose.

What is wanted, is a statement of objectives which combines a judicious blend of content and skills. In order that any such statement can be communicated to others (and it is worth stressing that assessment is in essence a communication problem), it is necessary to relate the skills to specific content. It is not enough to specify independently the content to be covered or the skills that students are expected to acquire.

Having emphasised the need for clear objectives direction in the assessment process, three basic questions need consideration:

Why test?
What to test?
How to test?

In education, it appears that there are two main functions of assessment, those of diagnosis and discrimination.

Diagnosis is essentially supportive, where the results of information gained from assessment are used for such operations as remediation, counselling or course improvement. The main thrust here is to use results to improve learning.

In contrast, much assessment has an important discrimination function. Here, the results of assessment procedures are used either to identify the relative competencies of individuals, or to identify the competencies of students in specified tasks in a satisfactory manner. These procedures are sometimes known as 'Norm Referencing' and 'Criterion Referencing' respectively.

In a university, the main concern is usually to discriminate between students to place them in rank order. The rank order is then translated into grades, which supposedly represent some standard of competence agreed upon by students, lecturers and outside bodies. Since for most subjects/units, there are no clearly defined appropriate standards, we rely on a hope that our students form a representative sample, or on our knowledge of our discipline and perceptions of standards adhered to in other similar institutions.

This is the case in most institutions, where diagnosis, remediation, mastery learning and criterion referencing are neglected, and also the use of assessments as aids for learning and pacing devices are similarly under utilised.

If the function of assessment as briefly outlined above is acceptable, we are then faced with the question, what to test?. There is considerable disagreement as to the appropriate response to this question, and there seems to be no universally applicable answer. However, unless there is good reason to do otherwise, 'Test that which has been taught!' is the soundest advice.

However, there are many other things which may be inadvertently or intentionally tested.

For example:

- Knowledge acquired before teaching - inevitable to some extent as we assume basic communication skills and penalise those who do not have them.
- Knowledge not directly taught, but acquired upon the lecturer's advice, e.g. recommended peripheral reading.
- Knowledge acquired during the period of instruction, entirely on the student's own volition, e.g. wide reading, knowledge from other disciplines.
- Knowledge which comprises only a very small part of what students have been asked to learn, e.g. ask students to read twenty novels and ask questions on only two.
- Knowledge unique to a particular student who has pursued an individualised course of study, e.g. independent study or creative portfolio.

This list is far from exhaustive, and the final degree of departure from testing a common core of knowledge must be a matter of informed professional judgement. Notwithstanding the above, students in general should only be tested upon that which they are told they will be tested. Such advice is in obvious need of refinement, as the specificity of such direction and the conceptual level of the desired response has to be established.

Misunderstandings about the level of response are common, lack of communication to the student being justified by the argument that if you understand the subject, you can anticipate an appropriate response. This may have been partly true in single discipline, degree courses, but in unit structure courses it is more likely to be an untenable point of view: especially with students beginning subject sequences.

The level of response may vary from Recall of Knowledge through:

Comprehension
Application
Analysis
Synthesis to
Evaluation

Assessment procedures should clarify the level of response required, communicate it to the students and design an assessment procedure accordingly.

Having considered the problems of 'why test?' and 'what to test?' the major concern of 'how to test?' remains to be dealt with. There is no recipe for this, as 'why' and 'what' are variables which will affect 'how'. Thus the question of appropriate assessment procedures can only be dealt with by presenting a series of options and general considerations which can be applied in specific situations after informed judgement, using appropriate criteria, especially those concerning validity and reliability.

Validity

This concerns the degree to which an assessment procedure actually tests those competencies which the assessor believes are most important.

- How do you know what your assessment procedures are testing?
- What do you think you are testing?
- Do you value independent, critical thinking?
- Can you test it?
- Do you teach recall, reasoning or plagiarism?
- Do you test it?

Reliability

This is a pre-requisite for any type of assessment, although it may be traded off to some degree against validity. It deals with the problem of obtaining consistent scores, unaffected by extraneous variables.

- Example 1

  I teach 15 out of a group of 100 students. My group obtain 8 'A's', 6 'B's' and 1 'C'. Only 9 'A's' and 20 'B's' were awarded in the total group of 100 students..

  * Did I have the most able students?
  * Was I the best teacher?
  * Am I naive about assessment?

- Example 2

  Last semester my students could chose to do either a case study of an adolescent girl,

  or

  write an essay on the concept of time in Melanesia. The students who did the case study did much better, getting all the 'A's' and 'B's'. Did that matter, as they must have been brighter to pick the more productive option?

- Example 3

  Either

  write a 3,000 word essay on existentialism in the medium of Mandarin Chinese

  Or

  write your name in block letters.

COURSE EVALUATION

Why Should We Evaluate?

Comments and criticisms based on impressions of a few individuals and derived from the more outspoken members of the student group are worth having but they may present a biased picture of the overall impact of a course. Planned and systematic methods of evaluation need to supplement these informal impressions. Systematic evaluation does not, however, imply that evaluation is conducted only on the basis of computerised analyses of questionnaire data.

Without information about the effect of courses on students and their tutors, effective re-writing and short-term modifications are impossible. It should also be considered that the lecturer involved in re-writing may not be the one involved in the initial writing. These individuals in particular need more than informal comments on the course.

Who Should Carry out Evaluation of Subjects?

There must be a structure capable of utilising both the intimate knowledge the individual lecturer has about the nature of a subject and student response to it, and the more objective, analytical approach of one with less intimate involvement. Ideally, formative evaluation should be constantly undertaken by the lecturer, however, this should be supplemented by a more comprehensive approach, if major changes are being considered, or specific problems emerge. Whoever does the evaluation, it is essential that any findings are communicated to those persons who are capable of action, and that appropriate action does occur.

When Should Evaluation Begin?

Planning for evaluation should ideally begin before the course is written and certainly before it is distributed to students. This is necessary so that lecturers and students will be sensitised to the possibility of their involvement in evaluation and so that

questionnaires and interview schedules may be prepared if they are to be sent out with course materials. It is not adequate to conduct a 'quick' evaluation immediately before the re-writing stage.

How Should Evaluation Proceed?

Course evaluation should consist of a brief 'history' of the course and should be an ongoing process.

The following sources of information and feedback are all essential components of evaluation:

- analysis of continuous assessment and exams
- questionnaires to all students
- interviews with a sample of students
- interviews with course tutors or comment derived at tutors' meetings conducted during the presentation of the course. These comments are expected to be mainly on the academic aspects of the course
- information re student enquiries and difficulties from the administrative staff. These enquiries are expected to be mainly on the organisational aspects of the course
- correspondence initiated by individual students
- computer based information on students who do and do not survive the course.

What Aspects Need to be Evaluated?

- Workload
  - * Is it possible for a student to complete the course (or unit or subject) in the time available?
  - * Do some sections impose too great a workload on the student?
- Activities
  - * Are they suitable and relevant to the study guide discussion?
  - * How much student time do they occupy?
  - * Should they be maintained, eliminated, modified in future?
- Notes and Study Guides
  - * Does the writing convey a clear and unambiguous account of the subject matter?
  - * Are too many terms left unexplained?
  - * Is the style of writing suitable for recipients?

- Set Texts
  - Do they need to be updated/replaced/removed from the course?
  - Are they sufficiently well integrated with the notes or study guide?
  - Are they continuously obtainable?
- Recommended Reading
  - Are the texts being used by students?
- Readings (Resource Material)
  - Is the selection of materials appropriate, and is the Readings/Resource material booklet of a suitable length?
- Assessment
  - Are the assessment questions unambiguous?
  - How long did students spend on formal assessment activities?
  - Was the difficulty level appropriate?
  - Should there be early assessment carrying few marks in order to inform students of their progress?
  - Do students receive enough feedback about their assignments as distinct from receiving a grade?
- Supplementary Materials & General Course Information

  Are the students sufficiently well informed about:
  - The overall structure of the course subject?
  - The lecturer's aims for the course/subject?
  - Those aspects of the course/subject which are essential/less essential components?
- Production of Materials (Essential Feedback to Production Group)

  Are the materials:
  - Readable?
  - Visually interesting?
  - Presented clearly and accurately?

- Audio-tapes/Video-tapes

  Are these materials:

  * Well integrated into the course?
  * Informative to students?
  * Essential/enriching/superfluous?

  Have students had difficulties gaining access to equipment?

- Residential Schools

  * Are the residential schools working to the benefit of students?
  * Are the programmes suitable?
  * What are the advantages/disadvantages of residential schools?
  * What systems might be tried in future, e.g. teleconferencing, weekend or day schools.

What Instruments Should be Used in Evaluation?

It is not desirable that course evaluation be based only on responses to questionnaires or data on student success/failure rates.

- Certainly brief questionnaires to students are essential. In addition, interviews with a sample of students and, if possible, all tutors would be very useful.

- In addition, it is highly desirable that lecturers should meet the students in formal and informal settings at residential schools. Informal and structured comments should be written down or taped and filed for future reference.

In this context it seems that some sort of pastoral notion is needed, particularly in the first semester undertaken by students who have been out of touch with study for some time. Evaluation, in these circumstances, cannot be conducted simply by questionnaires. Interviews and informal discussions are important in order to help students who lack confidence to locating the source of their problems.

- Telephone contact with lecturers (say at the end of every phase of the course) needs to be encouraged.

- A record of failures and withdrawals among different categories of students should be readily available.

CONCLUSION

The aim of evaluation is to generate information for improvement. The emphasis in recommendations arising from evaluations should therefore be supportive rather than critical and destructive. It is highly desirable that the person who is primarily responsible for evaluation be either a member of the relevant subject or course team or closely associated with it. This person needs to be in sympathy with the aims and problems of the team rather than an 'outsider' to the group. Unless conducted in a sensitive manner feedback from evaluation may be destructive and introduce antipathy between lecturers.